



Ultra Cloud Core 5G Session Management Function, Release 2021.01.0 - CLI Command Reference

First Published: 2021-02-12

Last Modified: 2021-05-13

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

All printed copies and duplicate soft copies of this document are considered uncontrolled. See the current online version for the latest version.

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

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <https://www.cisco.com/c/en/us/about/legal/trademarks.html>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1721R)

© 2021 Cisco Systems, Inc. All rights reserved.



CONTENTS

PREFACE

About this Guide	xxiii
Conventions Used	xxiii

CHAPTER 1

Configuration Command Reference	1
SMF Executive Commands	14
aaa	14
cd	14
cdl clear	15
cdl show sessions	15
cdl show status	16
clear ipam	17
clear subscriber	17
commit	17
compare	18
config	18
describe	19
dump	20
exit	20
help	21
history	22
id	22
idle-timeout	23
ignore-leading-space	23
job	23
leaf-prompting	24
license smart deregister	24

license smart register 24

license smart renew 25

logout 25

monitor protocol 26

monitor subscriber 26

no 27

paginate 27

quit 28

rcm switchover 28

screen-length 28

screen-width 29

send 29

show 29

show-defaults 30

smiuser 30

system 32

terminal 32

timestamp 33

who 33

active-charging service 33

active-charging service bandwidth-policy 34

active-charging service bandwidth-policy flow limit-for-bandwidth id 34

active-charging service bandwidth-policy group-id 35

active-charging service bandwidth-policy group-id direction downlink grpPeakBwp 35

active-charging service bandwidth-policy group-id direction uplink grpPeakBwp 37

active-charging service buffering-limit 38

active-charging service charging-action 39

active-charging service charging-action allocation-retention-priority 40

active-charging service charging-action billing-action 41

active-charging service charging-action cca charging credit 41

active-charging service charging-action flow action 42

active-charging service charging-action flow action discard 42

active-charging service charging-action flow action readdress 43

active-charging service charging-action flow limit-for-bandwidth 43

active-charging service charging-action flow limit-for-bandwidth direction downlink peak-data-rate	43
active-charging service charging-action flow limit-for-bandwidth direction uplink peak-data-rate	45
active-charging service charging-action tft packet-filter	46
active-charging service charging-action tos af11	46
active-charging service charging-action tos af12	47
active-charging service charging-action tos af13	47
active-charging service charging-action tos af21	47
active-charging service charging-action tos af22	48
active-charging service charging-action tos af23	48
active-charging service charging-action tos af31	49
active-charging service charging-action tos af32	49
active-charging service charging-action tos af33	49
active-charging service charging-action tos af41	50
active-charging service charging-action tos af42	50
active-charging service charging-action tos af43	51
active-charging service charging-action tos be	51
active-charging service charging-action tos ef	51
active-charging service charging-action tos lower-bits	52
active-charging service content-filtering category policy-id	52
active-charging service content-filtering category policy-id analyze priority	53
active-charging service content-filtering category policy-id analyze priority all	53
active-charging service content-filtering category policy-id analyze priority category	54
active-charging service content-filtering category policy-id analyze priority x-category	56
active-charging service credit-control group	57
active-charging service credit-control group associate	57
active-charging service credit-control group diameter	58
active-charging service credit-control group diameter origin	58
active-charging service credit-control group diameter service-context-id	59
active-charging service credit-control group diameter session	59
active-charging service credit-control group failure-handling initial-request	59
active-charging service credit-control group failure-handling initial-request continue	60
active-charging service credit-control group failure-handling initial-request retry-and-terminate	60
active-charging service credit-control group failure-handling initial-request terminate	61

active-charging service credit-control group failure-handling terminate-request	61
active-charging service credit-control group failure-handling terminate-request continue	62
active-charging service credit-control group failure-handling terminate-request retry-and-terminate	62
active-charging service credit-control group failure-handling terminate-request terminate	63
active-charging service credit-control group failure-handling update-request continue	63
active-charging service credit-control group failure-handling update-request retry-and-terminate	64
active-charging service credit-control group failure-handling update-request terminate	64
active-charging service credit-control group pending-traffic-treatment forced-reauth	65
active-charging service credit-control group pending-traffic-treatment noquota	65
active-charging service credit-control group pending-traffic-treatment noquota limited-pass	66
active-charging service credit-control group pending-traffic-treatment quota-exhausted	66
active-charging service credit-control group pending-traffic-treatment trigger	67
active-charging service credit-control group pending-traffic-treatment validity-expired	67
active-charging service credit-control group quota holding-time	67
active-charging service credit-control group quota request-trigger	68
active-charging service credit-control group timestamp-rounding	68
active-charging service credit-control group usage-reporting quotas-to-report based-on-grant	69
active-charging service group-of-ruledefs	69
active-charging service group-of-ruledefs add-ruledef priority	70
active-charging service p2p-detection attribute ssl-renegotiation	70
active-charging service p2p-detection ecs-analysis	71
active-charging service p2p-detection protocol	72
active-charging service packet-filter	73
active-charging service packet-filter ip local-port operator	73
active-charging service packet-filter ip local-port range	74
active-charging service packet-filter ip protocol	74
active-charging service packet-filter ip remote-address	75
active-charging service packet-filter ip remote-port operator	76
active-charging service packet-filter ip remote-port range	76
active-charging service packet-filter ip tos-traffic-class	77
active-charging service rulebase	77
active-charging service rulebase action	78
active-charging service rulebase action priority	79

active-charging service rulebase action priority dynamic-only	79
active-charging service rulebase action priority dynamic-only group-of-ruledefs	79
active-charging service rulebase action priority dynamic-only ruledef	80
active-charging service rulebase action priority group-of-ruledefs	80
active-charging service rulebase action priority ruledef	80
active-charging service rulebase action priority static-and-dynamic	81
active-charging service rulebase action priority static-and-dynamic group-of-ruledefs	81
active-charging service rulebase action priority static-and-dynamic ruledef	81
active-charging service rulebase action priority timedef	82
active-charging service rulebase action priority timedef group-of-ruledefs	82
active-charging service rulebase action priority timedef ruledef	83
active-charging service rulebase bandwidth	83
active-charging service rulebase billing-records	83
active-charging service rulebase billing-records udr	84
active-charging service rulebase cca diameter	84
active-charging service rulebase cca diameter requested-service-unit	85
active-charging service rulebase cca diameter requested-service-unit sub-avp	85
active-charging service rulebase cca diameter requested-service-unit sub-avp time	85
active-charging service rulebase cca diameter requested-service-unit sub-avp units	86
active-charging service rulebase cca diameter requested-service-unit sub-avp volume	86
active-charging service rulebase cca quota holding-time	87
active-charging service rulebase cca quota retry-time	87
active-charging service rulebase cca quota time-duration	88
active-charging service rulebase content-filtering category	88
active-charging service rulebase content-filtering flow-any-error	89
active-charging service rulebase content-filtering mode	89
active-charging service rulebase credit-control-group	90
active-charging service rulebase dynamic-rule	90
active-charging service rulebase edr transaction-complete	91
active-charging service rulebase egcdr threshold	92
active-charging service rulebase egcdr threshold volume	92
active-charging service rulebase flow	93
active-charging service rulebase flow control-handshaking	94
active-charging service rulebase flow control-handshaking charge-to-application	94

active-charging service rulebase flow end-condition	94
active-charging service rulebase flow limit-across-applications	95
active-charging service rulebase ip	96
active-charging service rulebase p2p	96
active-charging service rulebase post-processing	96
active-charging service rulebase post-processing priority	97
active-charging service rulebase post-processing priority group-of-ruledefs	97
active-charging service rulebase post-processing priority ruledef	98
active-charging service rulebase route	98
active-charging service rulebase route priority	99
active-charging service rulebase route priority ruledef	99
active-charging service rulebase rtp	100
active-charging service rulebase tcp	100
active-charging service rulebase tcp mss	101
active-charging service rulebase tcp packets-out-of-order	101
active-charging service rulebase tcp packets-out-of-order transmit	102
active-charging service rulebase tethering-detection	103
active-charging service rulebase url-blacklisting	104
active-charging service rulebase url-blacklisting action	104
active-charging service rulebase url-blacklisting match-method	105
active-charging service ruledef	105
active-charging service ruledef bearer	106
active-charging service ruledef bearer service-3gpp rat-type	106
active-charging service ruledef dns	107
active-charging service ruledef dns answer-name	107
active-charging service ruledef dns any-match	108
active-charging service ruledef dns previous-state	108
active-charging service ruledef dns query-name	109
active-charging service ruledef dns query-type	110
active-charging service ruledef dns return-code	111
active-charging service ruledef dns state	111
active-charging service ruledef dns tid	112
active-charging service ruledef http	113
active-charging service ruledef http content	113

active-charging service ruledef http content type	113
active-charging service ruledef http host	114
active-charging service ruledef http referer	115
active-charging service ruledef http url	116
active-charging service ruledef http user-agent	117
active-charging service ruledef icmpv6 any-match	117
active-charging service ruledef ip	118
active-charging service ruledef ip any-match	118
active-charging service ruledef ip dst-address	119
active-charging service ruledef ip protocol	120
active-charging service ruledef ip server-ip-addr	121
active-charging service ruledef ip uplink	122
active-charging service ruledef ip version	122
active-charging service ruledef multi-line-or	123
active-charging service ruledef p2p	123
active-charging service ruledef p2p app-identifier	124
active-charging service ruledef p2p protocol	125
active-charging service ruledef p2p traffic-type	134
active-charging service ruledef rtp	135
active-charging service ruledef rtp any-match	135
active-charging service ruledef rtsp	136
active-charging service ruledef rtsp any-match	136
active-charging service ruledef secure-http	137
active-charging service ruledef secure-http any-match	137
active-charging service ruledef secure-http uplink	138
active-charging service ruledef tcp	138
active-charging service ruledef tcp any-match	138
active-charging service ruledef tcp either-port with-portMap-range	139
active-charging service ruledef tcp either-port with-range	139
active-charging service ruledef tcp either-port without-range	140
active-charging service ruledef tcp flag	141
active-charging service ruledef tcp state	141
active-charging service ruledef tethering-detection	142
active-charging service ruledef tethering-detection application	143

active-charging service ruledef tethering-detection dns-based 143

active-charging service ruledef tethering-detection ip-ttl 144

active-charging service ruledef tethering-detection os-ua 144

active-charging service ruledef udp 144

active-charging service ruledef udp any-match 145

active-charging service ruledef udp either-port with-portMap-range 145

active-charging service ruledef udp either-port with-range 146

active-charging service ruledef udp either-port without-range 146

active-charging service ruledef wsp any-match 147

active-charging service ruledef wtp any-match 147

active-charging service ruledef www 148

active-charging service ruledef www any-match 148

active-charging service ruledef www host 149

active-charging service ruledef www url 150

active-charging service url-blacklisting 151

active-charging service urr-list 151

active-charging service urr-list urr-list-data 152

active-charging service urr-list urr-list-data service-identifier 152

apn 152

apn active-charging 153

apn authorize-with-hss 153

apn authorize-with-hss egtp 153

apn authorize-with-hss egtp gn-gp-enabled 154

apn authorize-with-hss egtp s2b 154

apn authorize-with-hss egtp s2b gn-gp-enabled 154

apn authorize-with-hss egtp s2b s5-s8 155

apn authorize-with-hss egtp s5-s8 155

apn authorize-with-hss egtp s5-s8 s2b 156

apn authorize-with-hss lma 156

apn cc-profile 156

apn content-filtering category 157

apn data-tunnel 157

apn gtp group 158

apn ip access-group 158

apn ip source-violation	159
apn ppp	159
apn timeout	159
clear subscriber	160
client http header	160
client http ping	161
client inbound interface	161
client inbound interface limit overload	162
client inbound interface limit pending	162
client inbound limit overload	162
client inbound limit pending	163
client outbound host ping	163
client outbound interface	164
client outbound interface host ping	164
client outbound interface limit pending	164
client outbound limit pending	165
config-error info	165
deployment	166
deployment resource	166
diagnostics info	167
dump transactionhistory	167
edr	167
edr file files	168
edr file files flush	168
edr file files limit	169
endpoint all	169
endpoint ep	169
endpoint ep interface	170
endpoint ep interface dispatcher	171
endpoint ep interface sla	171
endpoint ep interface vip	171
endpoint ep system-health-level crash	172
endpoint ep system-health-level critical	172
endpoint ep system-health-level warn	173

endpoint ep vip	174
endpoint info	174
group nf-mgmt	175
group nf-mgmt heartbeat	176
group nrf discovery	176
group nrf discovery service type nrf	177
group nrf discovery service type nrf endpoint-profile	177
group nrf discovery service type nrf endpoint-profile endpoint-name	178
group nrf discovery service type nrf endpoint-profile endpoint-name primary ip-address	178
group nrf discovery service type nrf endpoint-profile endpoint-name secondary ip-address	179
group nrf discovery service type nrf endpoint-profile endpoint-name tertiary ip-address	179
group nrf discovery service type nrf endpoint-profile version uri-version	180
group nrf mgmt	180
group nrf mgmt service type nrf	181
group nrf mgmt service type nrf endpoint-profile	181
group nrf mgmt service type nrf endpoint-profile endpoint-name	182
group nrf mgmt service type nrf endpoint-profile endpoint-name primary ip-address	182
group nrf mgmt service type nrf endpoint-profile endpoint-name secondary ip-address	183
group nrf mgmt service type nrf endpoint-profile endpoint-name tertiary ip-address	183
group nrf mgmt service type nrf endpoint-profile version uri-version	184
gtp group	184
gtp group gtp	185
gtp group gtp egcdr	185
gtp group gtp egcdr final-record closing-cause	185
gtp group gtp egcdr losdv-max-containers	186
gtp group gtp egcdr service-data-flow threshold	186
gtp group gtp egcdr service-data-flow threshold volume	186
gtp group gtp egcdr service-idle-timeout	187
gtp group gtp trigger	187
gtp group gtp trigger egcdr	188
infra metrics experimental	188
infra metrics verbose verboseLevels	188
infra transaction limit	189
infra transaction limit consecutive same	189

infra transaction loop	190
infra transaction loop category	190
infra transaction loop category threshold	191
infra transaction loop category threshold thresholds	191
k8 label pod-group-config	192
logging error	192
logging level	193
logging logger	194
logging logger level	195
logging transaction	196
nf-tls ca-certificates	197
nf-tls certificate-status	198
nf-tls certificates	198
nrf	198
nrf discovery-info	199
nrf discovery-info discovery-filter	199
nrf discovery-info discovery-filter nf-discovery-profile	199
nrf discovery-info discovery-filter nf-discovery-profile nf-service	199
nrf registration-info	199
nrf subscription-info	200
nssai	200
peers all	201
policy dnn	201
policy dnn dnn dnn	201
policy dnn dnn network-identifier	202
policy dnn dnn network-identifier operator-identifier	202
policy dnn dnn operator-identifier	203
policy network-capability	203
policy operator	204
policy operator policy	204
policy subscriber	205
policy subscriber list-entry	205
policy subscriber list-entry imsi	207
policy subscriber list-entry imsi msin	207

policy subscriber list-entry serving-plmn	207
policy upf-selection	208
policy upf-selection list-entry	208
policy upf-selection list-entry query-params	208
profile access	209
profile access eps-fallback cbr	209
profile access eps-fallback guard	210
profile access erir	210
profile access gtpc	211
profile access n1 t3591-pdu-mod-cmd	211
profile access n1 t3592-pdu-rel-cmd	211
profile access n11	212
profile access n2 idft	212
profile access n26 idft	213
profile charging	213
profile charging accounting limit	215
profile charging accounting limit volume	215
profile charging limit	216
profile charging limit rating-group	216
profile charging offline zero-usage	216
profile charging quota	217
profile charging quota suppress	218
profile charging reporting-level	218
profile charging requested-service-unit	219
profile charging requested-service-unit volume	219
profile charging tariff-time-change	219
profile charging triggers	220
profile charging-characteristics	221
profile charging-characteristics network-element-profile-list	221
profile compliance	221
profile compliance service	222
profile compliance service n1-version	222
profile compliance service n2-version	223
profile compliance service namf-version	224

profile compliance service nchf-version	224
profile compliance service nnrf-disc-version	225
profile compliance service nnrf-nfm-version	226
profile compliance service npcfc-version	226
profile compliance service nsmf-version	227
profile compliance service nudm-sdm-version	228
profile compliance service nudm-uecm-version	229
profile compliance service threegpp23502-version	229
profile content-filtering category database	230
profile content-filtering category database directory	230
profile dnn	231
profile dnn accounting	234
profile dnn authentication algorithm	234
profile dnn authentication secondary	235
profile dnn authorization	235
profile dnn dnn	236
profile dnn dnn nw-fu-conf	236
profile dnn dnn rmgr-conf	237
profile dnn dns primary	237
profile dnn dns secondary	237
profile dnn network-element-profiles	238
profile dnn nssai	238
profile dnn outbound	239
profile dnn primary-plmn	239
profile dnn session type	240
profile dnn ssc-mode	240
profile dnn timeout	241
profile dnn upf	242
profile dns-proxy	242
profile dns-proxy servers	243
profile ecgi-group	244
profile ecgi-group ecgis	244
profile ecgi-group ecgis ecgi	245
profile ecgi-group ecgis ecgi range	245

profile emergency-profile	245
profile failure-handling	246
profile failure-handling interface gtpc message	246
profile failure-handling interface gtpc message cause-code-type cause-code	247
profile failure-handling interface gtpc message cause-code-type cause-code action	247
profile failure-handling interface n11	248
profile failure-handling interface n11 message	248
profile failure-handling interface n11 message cause-code-value cause-code	249
profile failure-handling interface n11 message cause-code-value cause-code action	249
profile failure-handling interface pfcsp message	250
profile failure-handling interface pfcsp message cause-code-type-est cause-code	250
profile failure-handling interface pfcsp message cause-code-type-est cause-code action	251
profile failure-handling interface pfcsp message cause-code-type-mod cause-code	251
profile failure-handling interface pfcsp message cause-code-type-mod cause-code action	252
profile failure-handling interface pfcsp message cause-code-type-sessreport cause-code	252
profile failure-handling interface pfcsp message cause-code-type-sessreport cause-code action	253
profile failure-handling interface sxa message	253
profile failure-handling interface sxa message cause-code-type-est cause-code	254
profile failure-handling interface sxa message cause-code-type-est cause-code action	254
profile icmpv6	255
profile icmpv6 options	255
profile location-area-group	256
profile n3-tunnel	257
profile n3-tunnel buffer	257
profile ncgi-group	258
profile ncgi-group ncgis	258
profile ncgi-group ncgis ncgi	258
profile ncgi-group ncgis ncgi range	259
profile network-element amf	259
profile network-element amf discovery	260
profile network-element amf query-params	260
profile network-element chf	261
profile network-element chf discovery	262
profile network-element chf query-params	262

profile network-element pcf	262
profile network-element pcf discovery	264
profile network-element pcf query-params	264
profile network-element udm	265
profile network-element upf	266
profile network-element upf n4-peer-address	267
profile nf-client nf-type amf amf-profile	268
profile nf-client nf-type amf amf-profile locality	268
profile nf-client nf-type amf amf-profile locality service name type	268
profile nf-client nf-type amf amf-profile locality service name type endpoint-profile	269
profile nf-client nf-type amf amf-profile locality service name type endpoint-profile endpoint-name	270
profile nf-client nf-type amf amf-profile locality service name type endpoint-profile version uri-version	271
profile nf-client nf-type ausf ausf-profile	271
profile nf-client nf-type ausf ausf-profile locality	272
profile nf-client nf-type ausf ausf-profile locality service name type	272
profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile	272
profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile endpoint-name	273
profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile version uri-version	274
profile nf-client nf-type chf chf-profile	275
profile nf-client nf-type chf chf-profile locality	275
profile nf-client nf-type chf chf-profile locality service name type	275
profile nf-client nf-type chf chf-profile locality service name type endpoint-profile	276
profile nf-client nf-type chf chf-profile locality service name type endpoint-profile endpoint-name	277
profile nf-client nf-type chf chf-profile locality service name type endpoint-profile version uri-version	278
profile nf-client nf-type eir eir-profile	278
profile nf-client nf-type eir eir-profile locality	278
profile nf-client nf-type eir eir-profile locality service name type	279
profile nf-client nf-type eir eir-profile locality service name type endpoint-profile	279
profile nf-client nf-type eir eir-profile locality service name type endpoint-profile endpoint-name	280

profile nf-client nf-type eir eir-profile locality service name type endpoint-profile version uri-version
281

profile nf-client nf-type pcf pcf-profile **282**

profile nf-client nf-type pcf pcf-profile locality **282**

profile nf-client nf-type pcf pcf-profile locality service name type **282**

profile nf-client nf-type smf smf-profile **283**

profile nf-client nf-type smf smf-profile locality **283**

profile nf-client nf-type udm udm-profile **284**

profile nf-client nf-type udm udm-profile locality **284**

profile nf-client nf-type udm udm-profile locality service name type **285**

profile nf-client-failure nf-type amf profile failure-handling **285**

profile nf-client-failure nf-type amf profile failure-handling service name type **286**

profile nf-client-failure nf-type amf profile failure-handling service name type message type **286**

profile nf-client-failure nf-type ausf profile failure-handling **287**

profile nf-client-failure nf-type ausf profile failure-handling service name type **287**

profile nf-client-failure nf-type ausf profile failure-handling service name type message type **287**

profile nf-client-failure nf-type chf profile failure-handling **288**

profile nf-client-failure nf-type chf profile failure-handling service name type **288**

profile nf-client-failure nf-type chf profile failure-handling service name type message type **289**

profile nf-client-failure nf-type eir profile failure-handling **289**

profile nf-client-failure nf-type eir profile failure-handling service name type **290**

profile nf-client-failure nf-type eir profile failure-handling service name type message type **290**

profile nf-client-failure nf-type pcf profile failure-handling **291**

profile nf-client-failure nf-type pcf profile failure-handling service name type **291**

profile nf-client-failure nf-type udm profile failure-handling **292**

profile nf-client-failure nf-type udm profile failure-handling service name type **292**

profile nf-pair nf-type **293**

profile nf-pair nf-type cache **294**

profile nf-pair nf-type cache invalidation **294**

profile nf-pair nf-type cache invalidation true **294**

profile nf-pair nf-type locality **295**

profile pcscf **295**

profile pcscf fqdn **296**

profile pcscf pcscf-selection **296**

profile pscf v4-list	296
profile pscf v4-list list-entry	297
profile pscf v4-list list-entry primary	297
profile pscf v4-list list-entry secondary	297
profile pscf v4-list list-entry tertiary	298
profile pscf v4v6-list	298
profile pscf v4v6-list list-entry	298
profile pscf v4v6-list list-entry primary	299
profile pscf v4v6-list list-entry secondary	299
profile pscf v4v6-list list-entry tertiary	300
profile pscf v6-list	300
profile pscf v6-list list-entry	301
profile pscf v6-list list-entry primary	301
profile pscf v6-list list-entry secondary	301
profile pscf v6-list list-entry tertiary	302
profile ppd	302
profile ppd dscp-list	303
profile qos	303
profile qos ambr	304
profile qos arp	304
profile qos dscp-map qi5	305
profile qos dscp-map qi5 arp-priority-level	305
profile qos dscp-map qi5 arp-priority-level dscp-info	306
profile qos dscp-map qi5 arp-priority-level dscp-info user-datagram	307
profile qos dscp-map qi5 dscp-info	307
profile qos dscp-map qi5 dscp-info user-datagram	308
profile qos max	308
profile radius	309
profile radius accounting	309
profile radius accounting attribute	310
profile radius accounting detect-dead-server	311
profile radius attribute	311
profile radius detect-dead-server	311
profile radius server	312

profile radius server-group	313
profile radius server-group server	313
profile radius-dynamic-author	313
profile radius-dynamic-author client	314
profile sgw	314
profile sgw ddn	315
profile sgw internal-qos	316
profile sgw plmn-list	316
profile sgw-qos-profile	317
profile sgw-qos-profile dscp-map operator-defined-qci	317
profile sgw-qos-profile dscp-map operator-defined-qci gbr arp-priority-level	318
profile sgw-qos-profile dscp-map operator-defined-qci gbr arp-priority-level dscp-info	318
profile sgw-qos-profile dscp-map operator-defined-qci gbr dscp-info	323
profile sgw-qos-profile dscp-map operator-defined-qci non-gbr	328
profile sgw-qos-profile dscp-map operator-defined-qci non-gbr arp-priority-level	329
profile sgw-qos-profile dscp-map operator-defined-qci non-gbr arp-priority-level dscp-info	329
profile sgw-qos-profile dscp-map operator-defined-qci non-gbr dscp-info	334
profile sgw-qos-profile dscp-map qci	339
profile sgw-qos-profile dscp-map qci arp-priority-level	340
profile sgw-qos-profile dscp-map qci arp-priority-level dscp-info	340
profile sgw-qos-profile dscp-map qci default	345
profile sgw-qos-profile dscp-map qci default dscp-info	345
profile sgw-qos-profile dscp-map qci gbr dscp-info	350
profile sgw-qos-profile dscp-map qci non-gbr dscp-info	355
profile smf	361
profile smf plmn-id	362
profile smf plmn-list	363
profile smf service	363
profile smf service http-endpoint	365
profile tai-group	365
profile tai-group tais	365
profile tai-group tais tac	366
profile tai-group tais tac range	366
profile upf-group	366

profile upf-group failure-profile	367
profile upf-group heartbeat	368
profile wps	368
profile wps dscp	369
radius	369
radius acct-server	370
radius auth-server	370
radius-dyn-auth	370
radius-dyn-auth clients	370
resources info	370
rpc all	371
running-status info	371
sessions affinity	371
sessions commit-pending	371
show subscriber	372
system-diagnostics session-consistency	372
test dns-query	372
test-radius	373
test-radius accounting	373
test-radius authentication	374



About this Guide

This preface describes the *5G Session Management Function Guide*, how it is organized and its document conventions.

This guide describes the Cisco Session Management Function (SMF) and includes infrastructure and interfaces, feature descriptions, specification compliance, session flows, configuration instructions, and CLI commands for monitoring and troubleshooting the system.

- [Conventions Used, on page xxiii](#)

Conventions Used

The following tables describe the conventions used throughout this documentation.

Notice Type	Description
Information Note	Provides information about important features or instructions.
Caution	Alerts you of potential damage to a program, device, or system.
Warning	Alerts you of potential personal injury or fatality. May also alert you of potential electrical hazards.

Typeface Conventions	Description
Text represented as a screen display	This typeface represents displays that appear on your terminal screen, for example: Login:
Text represented as commands	This typeface represents commands that you enter, for example: show ip access-list This document always gives the full form of a command in lowercase letters. Commands are not case sensitive.

Typeface Conventions	Description
Text represented as a command <i>variable</i>	This typeface represents a variable that is part of a command, for example: show card <i>slot_number</i> <i>slot_number</i> is a variable representing the desired chassis slot number.
Text represented as menu or sub-menu names	This typeface represents menus and sub-menus that you access within a software application, for example: Click the File menu, then click New



CHAPTER 1

Configuration Command Reference

- [SMF Executive Commands, on page 14](#)
- [active-charging service, on page 33](#)
- [active-charging service bandwidth-policy, on page 34](#)
- [active-charging service bandwidth-policy flow limit-for-bandwidth id, on page 34](#)
- [active-charging service bandwidth-policy group-id, on page 35](#)
- [active-charging service bandwidth-policy group-id direction downlink grpPeakBwp, on page 35](#)
- [active-charging service bandwidth-policy group-id direction uplink grpPeakBwp, on page 37](#)
- [active-charging service buffering-limit, on page 38](#)
- [active-charging service charging-action, on page 39](#)
- [active-charging service charging-action allocation-retention-priority, on page 40](#)
- [active-charging service charging-action billing-action, on page 41](#)
- [active-charging service charging-action cca charging credit, on page 41](#)
- [active-charging service charging-action flow action, on page 42](#)
- [active-charging service charging-action flow action discard, on page 42](#)
- [active-charging service charging-action flow action readdress, on page 43](#)
- [active-charging service charging-action flow limit-for-bandwidth, on page 43](#)
- [active-charging service charging-action flow limit-for-bandwidth direction downlink peak-data-rate, on page 43](#)
- [active-charging service charging-action flow limit-for-bandwidth direction uplink peak-data-rate, on page 45](#)
- [active-charging service charging-action tft packet-filter, on page 46](#)
- [active-charging service charging-action tos af11, on page 46](#)
- [active-charging service charging-action tos af12, on page 47](#)
- [active-charging service charging-action tos af13, on page 47](#)
- [active-charging service charging-action tos af21, on page 47](#)
- [active-charging service charging-action tos af22, on page 48](#)
- [active-charging service charging-action tos af23, on page 48](#)
- [active-charging service charging-action tos af31, on page 49](#)
- [active-charging service charging-action tos af32, on page 49](#)
- [active-charging service charging-action tos af33, on page 49](#)
- [active-charging service charging-action tos af41, on page 50](#)
- [active-charging service charging-action tos af42, on page 50](#)
- [active-charging service charging-action tos af43, on page 51](#)
- [active-charging service charging-action tos be, on page 51](#)

- active-charging service charging-action tos ef, on page 51
- active-charging service charging-action tos lower-bits, on page 52
- active-charging service content-filtering category policy-id, on page 52
- active-charging service content-filtering category policy-id analyze priority, on page 53
- active-charging service content-filtering category policy-id analyze priority all, on page 53
- active-charging service content-filtering category policy-id analyze priority category, on page 54
- active-charging service content-filtering category policy-id analyze priority x-category, on page 56
- active-charging service credit-control group, on page 57
- active-charging service credit-control group associate, on page 57
- active-charging service credit-control group diameter, on page 58
- active-charging service credit-control group diameter origin, on page 58
- active-charging service credit-control group diameter service-context-id, on page 59
- active-charging service credit-control group diameter session, on page 59
- active-charging service credit-control group failure-handling initial-request, on page 59
- active-charging service credit-control group failure-handling initial-request continue, on page 60
- active-charging service credit-control group failure-handling initial-request retry-and-terminate, on page 60
- active-charging service credit-control group failure-handling initial-request terminate, on page 61
- active-charging service credit-control group failure-handling terminate-request, on page 61
- active-charging service credit-control group failure-handling terminate-request continue, on page 62
- active-charging service credit-control group failure-handling terminate-request retry-and-terminate, on page 62
- active-charging service credit-control group failure-handling terminate-request terminate, on page 63
- active-charging service credit-control group failure-handling update-request continue, on page 63
- active-charging service credit-control group failure-handling update-request retry-and-terminate, on page 64
- active-charging service credit-control group failure-handling update-request terminate, on page 64
- active-charging service credit-control group pending-traffic-treatment forced-reauth, on page 65
- active-charging service credit-control group pending-traffic-treatment noquota, on page 65
- active-charging service credit-control group pending-traffic-treatment noquota limited-pass, on page 66
- active-charging service credit-control group pending-traffic-treatment quota-exhausted, on page 66
- active-charging service credit-control group pending-traffic-treatment trigger, on page 67
- active-charging service credit-control group pending-traffic-treatment validity-expired, on page 67
- active-charging service credit-control group quota holding-time, on page 67
- active-charging service credit-control group quota request-trigger, on page 68
- active-charging service credit-control group timestamp-rounding, on page 68
- active-charging service credit-control group usage-reporting quotas-to-report based-on-grant, on page 69
- active-charging service group-of-ruledefs, on page 69
- active-charging service group-of-ruledefs add-ruledef priority, on page 70
- active-charging service p2p-detection attribute ssl-renegotiation, on page 70
- active-charging service p2p-detection ecs-analysis, on page 71
- active-charging service p2p-detection protocol, on page 72
- active-charging service packet-filter, on page 73
- active-charging service packet-filter ip local-port operator, on page 73
- active-charging service packet-filter ip local-port range, on page 74

- active-charging service packet-filter ip protocol, on page 74
- active-charging service packet-filter ip remote-address, on page 75
- active-charging service packet-filter ip remote-port operator, on page 76
- active-charging service packet-filter ip remote-port range, on page 76
- active-charging service packet-filter ip tos-traffic-class, on page 77
- active-charging service rulebase, on page 77
- active-charging service rulebase action, on page 78
- active-charging service rulebase action priority, on page 79
- active-charging service rulebase action priority dynamic-only, on page 79
- active-charging service rulebase action priority dynamic-only group-of-ruledefs, on page 79
- active-charging service rulebase action priority dynamic-only ruledef, on page 80
- active-charging service rulebase action priority group-of-ruledefs, on page 80
- active-charging service rulebase action priority ruledef, on page 80
- active-charging service rulebase action priority static-and-dynamic, on page 81
- active-charging service rulebase action priority static-and-dynamic group-of-ruledefs, on page 81
- active-charging service rulebase action priority static-and-dynamic ruledef, on page 81
- active-charging service rulebase action priority timedef, on page 82
- active-charging service rulebase action priority timedef group-of-ruledefs, on page 82
- active-charging service rulebase action priority timedef ruledef, on page 83
- active-charging service rulebase bandwidth, on page 83
- active-charging service rulebase billing-records, on page 83
- active-charging service rulebase billing-records udr, on page 84
- active-charging service rulebase cca diameter, on page 84
- active-charging service rulebase cca diameter requested-service-unit, on page 85
- active-charging service rulebase cca diameter requested-service-unit sub-avp, on page 85
- active-charging service rulebase cca diameter requested-service-unit sub-avp time, on page 85
- active-charging service rulebase cca diameter requested-service-unit sub-avp units, on page 86
- active-charging service rulebase cca diameter requested-service-unit sub-avp volume, on page 86
- active-charging service rulebase cca quota holding-time, on page 87
- active-charging service rulebase cca quota retry-time, on page 87
- active-charging service rulebase cca quota time-duration, on page 88
- active-charging service rulebase content-filtering category, on page 88
- active-charging service rulebase content-filtering flow-any-error, on page 89
- active-charging service rulebase content-filtering mode, on page 89
- active-charging service rulebase credit-control-group, on page 90
- active-charging service rulebase dynamic-rule, on page 90
- active-charging service rulebase edr transaction-complete, on page 91
- active-charging service rulebase egcdr threshold, on page 92
- active-charging service rulebase egcdr threshold volume, on page 92
- active-charging service rulebase flow, on page 93
- active-charging service rulebase flow control-handshaking, on page 94
- active-charging service rulebase flow control-handshaking charge-to-application, on page 94
- active-charging service rulebase flow end-condition, on page 94
- active-charging service rulebase flow limit-across-applications, on page 95
- active-charging service rulebase ip, on page 96
- active-charging service rulebase p2p, on page 96

- [active-charging service rulebase post-processing](#), on page 96
- [active-charging service rulebase post-processing priority](#), on page 97
- [active-charging service rulebase post-processing priority group-of-ruledefs](#), on page 97
- [active-charging service rulebase post-processing priority ruledef](#), on page 98
- [active-charging service rulebase route](#), on page 98
- [active-charging service rulebase route priority](#), on page 99
- [active-charging service rulebase route priority ruledef](#), on page 99
- [active-charging service rulebase rtp](#), on page 100
- [active-charging service rulebase tcp](#), on page 100
- [active-charging service rulebase tcp mss](#), on page 101
- [active-charging service rulebase tcp packets-out-of-order](#), on page 101
- [active-charging service rulebase tcp packets-out-of-order transmit](#), on page 102
- [active-charging service rulebase tethering-detection](#), on page 103
- [active-charging service rulebase url-blacklisting](#), on page 104
- [active-charging service rulebase url-blacklisting action](#), on page 104
- [active-charging service rulebase url-blacklisting match-method](#), on page 105
- [active-charging service ruledef](#), on page 105
- [active-charging service ruledef bearer](#), on page 106
- [active-charging service ruledef bearer service-3gpp rat-type](#), on page 106
- [active-charging service ruledef dns](#), on page 107
- [active-charging service ruledef dns answer-name](#), on page 107
- [active-charging service ruledef dns any-match](#), on page 108
- [active-charging service ruledef dns previous-state](#), on page 108
- [active-charging service ruledef dns query-name](#), on page 109
- [active-charging service ruledef dns query-type](#), on page 110
- [active-charging service ruledef dns return-code](#), on page 111
- [active-charging service ruledef dns state](#), on page 111
- [active-charging service ruledef dns tid](#), on page 112
- [active-charging service ruledef http](#), on page 113
- [active-charging service ruledef http content](#), on page 113
- [active-charging service ruledef http content type](#), on page 113
- [active-charging service ruledef http host](#), on page 114
- [active-charging service ruledef http referer](#), on page 115
- [active-charging service ruledef http url](#), on page 116
- [active-charging service ruledef http user-agent](#), on page 117
- [active-charging service ruledef icmpv6 any-match](#), on page 117
- [active-charging service ruledef ip](#), on page 118
- [active-charging service ruledef ip any-match](#), on page 118
- [active-charging service ruledef ip dst-address](#), on page 119
- [active-charging service ruledef ip protocol](#), on page 120
- [active-charging service ruledef ip server-ip-addr](#), on page 121
- [active-charging service ruledef ip uplink](#), on page 122
- [active-charging service ruledef ip version](#), on page 122
- [active-charging service ruledef multi-line-or](#), on page 123
- [active-charging service ruledef p2p](#), on page 123
- [active-charging service ruledef p2p app-identifier](#), on page 124

- [active-charging service ruledef p2p protocol](#), on page 125
- [active-charging service ruledef p2p traffic-type](#), on page 134
- [active-charging service ruledef rtp](#), on page 135
- [active-charging service ruledef rtp any-match](#), on page 135
- [active-charging service ruledef rtsp](#), on page 136
- [active-charging service ruledef rtsp any-match](#), on page 136
- [active-charging service ruledef secure-http](#), on page 137
- [active-charging service ruledef secure-http any-match](#), on page 137
- [active-charging service ruledef secure-http uplink](#), on page 138
- [active-charging service ruledef tcp](#), on page 138
- [active-charging service ruledef tcp any-match](#), on page 138
- [active-charging service ruledef tcp either-port with-portMap-range](#), on page 139
- [active-charging service ruledef tcp either-port with-range](#), on page 139
- [active-charging service ruledef tcp either-port without-range](#), on page 140
- [active-charging service ruledef tcp flag](#), on page 141
- [active-charging service ruledef tcp state](#), on page 141
- [active-charging service ruledef tethering-detection](#), on page 142
- [active-charging service ruledef tethering-detection application](#), on page 143
- [active-charging service ruledef tethering-detection dns-based](#), on page 143
- [active-charging service ruledef tethering-detection ip-ttl](#), on page 144
- [active-charging service ruledef tethering-detection os-ua](#), on page 144
- [active-charging service ruledef udp](#), on page 144
- [active-charging service ruledef udp any-match](#), on page 145
- [active-charging service ruledef udp either-port with-portMap-range](#), on page 145
- [active-charging service ruledef udp either-port with-range](#), on page 146
- [active-charging service ruledef udp either-port without-range](#), on page 146
- [active-charging service ruledef wsp any-match](#), on page 147
- [active-charging service ruledef wtp any-match](#), on page 147
- [active-charging service ruledef www](#), on page 148
- [active-charging service ruledef www any-match](#), on page 148
- [active-charging service ruledef www host](#), on page 149
- [active-charging service ruledef www url](#), on page 150
- [active-charging service url-blacklisting](#), on page 151
- [active-charging service urr-list](#), on page 151
- [active-charging service urr-list urr-list-data](#), on page 152
- [active-charging service urr-list urr-list-data service-identifier](#), on page 152
- [apn](#), on page 152
- [apn active-charging](#), on page 153
- [apn authorize-with-hss](#), on page 153
- [apn authorize-with-hss egtp](#), on page 153
- [apn authorize-with-hss egtp gn-gp-enabled](#), on page 154
- [apn authorize-with-hss egtp s2b](#), on page 154
- [apn authorize-with-hss egtp s2b gn-gp-enabled](#), on page 154
- [apn authorize-with-hss egtp s2b s5-s8](#), on page 155
- [apn authorize-with-hss egtp s5-s8](#), on page 155
- [apn authorize-with-hss egtp s5-s8 s2b](#), on page 156

- [apn authorize-with-hss lma](#), on page 156
- [apn cc-profile](#), on page 156
- [apn content-filtering category](#), on page 157
- [apn data-tunnel](#), on page 157
- [apn gtp group](#), on page 158
- [apn ip access-group](#), on page 158
- [apn ip source-violation](#), on page 159
- [apn ppp](#), on page 159
- [apn timeout](#), on page 159
- [clear subscriber](#), on page 160
- [client http header](#), on page 160
- [client http ping](#), on page 161
- [client inbound interface](#), on page 161
- [client inbound interface limit overload](#), on page 162
- [client inbound interface limit pending](#), on page 162
- [client inbound limit overload](#), on page 162
- [client inbound limit pending](#), on page 163
- [client outbound host ping](#), on page 163
- [client outbound interface](#), on page 164
- [client outbound interface host ping](#), on page 164
- [client outbound interface limit pending](#), on page 164
- [client outbound limit pending](#), on page 165
- [config-error info](#), on page 165
- [deployment](#), on page 166
- [deployment resource](#), on page 166
- [diagnostics info](#), on page 167
- [dump transactionhistory](#), on page 167
- [edr](#), on page 167
- [edr file files](#), on page 168
- [edr file files flush](#), on page 168
- [edr file files limit](#), on page 169
- [endpoint all](#), on page 169
- [endpoint ep](#), on page 169
- [endpoint ep interface](#), on page 170
- [endpoint ep interface dispatcher](#), on page 171
- [endpoint ep interface sla](#), on page 171
- [endpoint ep interface vip](#), on page 171
- [endpoint ep system-health-level crash](#), on page 172
- [endpoint ep system-health-level critical](#), on page 172
- [endpoint ep system-health-level warn](#), on page 173
- [endpoint ep vip](#), on page 174
- [endpoint info](#), on page 174
- [group nf-mgmt](#), on page 175
- [group nf-mgmt heartbeat](#), on page 176
- [group nrf discovery](#), on page 176
- [group nrf discovery service type nrf](#), on page 177

- [group nrf discovery service type nrf endpoint-profile](#), on page 177
- [group nrf discovery service type nrf endpoint-profile endpoint-name](#), on page 178
- [group nrf discovery service type nrf endpoint-profile endpoint-name primary ip-address](#), on page 178
- [group nrf discovery service type nrf endpoint-profile endpoint-name secondary ip-address](#), on page 179
- [group nrf discovery service type nrf endpoint-profile endpoint-name tertiary ip-address](#), on page 179
- [group nrf discovery service type nrf endpoint-profile version uri-version](#), on page 180
- [group nrf mgmt](#), on page 180
- [group nrf mgmt service type nrf](#), on page 181
- [group nrf mgmt service type nrf endpoint-profile](#), on page 181
- [group nrf mgmt service type nrf endpoint-profile endpoint-name](#), on page 182
- [group nrf mgmt service type nrf endpoint-profile endpoint-name primary ip-address](#), on page 182
- [group nrf mgmt service type nrf endpoint-profile endpoint-name secondary ip-address](#), on page 183
- [group nrf mgmt service type nrf endpoint-profile endpoint-name tertiary ip-address](#), on page 183
- [group nrf mgmt service type nrf endpoint-profile version uri-version](#), on page 184
- [gtp group](#), on page 184
- [gtp group gtp](#), on page 185
- [gtp group gtp egcdr](#), on page 185
- [gtp group gtp egcdr final-record closing-cause](#), on page 185
- [gtp group gtp egcdr losdv-max-containers](#), on page 186
- [gtp group gtp egcdr service-data-flow threshold](#), on page 186
- [gtp group gtp egcdr service-data-flow threshold volume](#), on page 186
- [gtp group gtp egcdr service-idle-timeout](#), on page 187
- [gtp group gtp trigger](#), on page 187
- [gtp group gtp trigger egcdr](#), on page 188
- [infra metrics experimental](#), on page 188
- [infra metrics verbose verboseLevels](#), on page 188
- [infra transaction limit](#), on page 189
- [infra transaction limit consecutive same](#), on page 189
- [infra transaction loop](#), on page 190
- [infra transaction loop category](#), on page 190
- [infra transaction loop category threshold](#), on page 191
- [infra transaction loop category threshold thresholds](#), on page 191
- [k8 label pod-group-config](#), on page 192
- [logging error](#), on page 192
- [logging level](#), on page 193
- [logging logger](#), on page 194
- [logging logger level](#), on page 195
- [logging transaction](#), on page 196
- [nf-tls ca-certificates](#), on page 197
- [nf-tls certificate-status](#), on page 198
- [nf-tls certificates](#), on page 198
- [nrf](#), on page 198
- [nrf discovery-info](#), on page 199
- [nrf discovery-info discovery-filter](#), on page 199
- [nrf discovery-info discovery-filter nf-discovery-profile](#), on page 199
- [nrf discovery-info discovery-filter nf-discovery-profile nf-service](#), on page 199

- nrf registration-info, on page 199
- nrf subscription-info, on page 200
- nssai, on page 200
- peers all, on page 201
- policy dnn, on page 201
- policy dnn dnn dnn, on page 201
- policy dnn dnn network-identifier, on page 202
- policy dnn dnn network-identifier operator-identifier, on page 202
- policy dnn dnn operator-identifier, on page 203
- policy network-capability, on page 203
- policy operator, on page 204
- policy operator policy, on page 204
- policy subscriber, on page 205
- policy subscriber list-entry, on page 205
- policy subscriber list-entry imsi, on page 207
- policy subscriber list-entry imsi msin, on page 207
- policy subscriber list-entry serving-plmn, on page 207
- policy upf-selection, on page 208
- policy upf-selection list-entry, on page 208
- policy upf-selection list-entry query-params, on page 208
- profile access, on page 209
- profile access eps-fallback cbr, on page 209
- profile access eps-fallback guard, on page 210
- profile access erir, on page 210
- profile access gtpc, on page 211
- profile access n1 t3591-pdu-mod-cmd, on page 211
- profile access n1 t3592-pdu-rel-cmd, on page 211
- profile access n11, on page 212
- profile access n2 idft, on page 212
- profile access n26 idft, on page 213
- profile charging, on page 213
- profile charging accounting limit, on page 215
- profile charging accounting limit volume, on page 215
- profile charging limit, on page 216
- profile charging limit rating-group, on page 216
- profile charging offline zero-usage, on page 216
- profile charging quota, on page 217
- profile charging quota suppress, on page 218
- profile charging reporting-level, on page 218
- profile charging requested-service-unit, on page 219
- profile charging requested-service-unit volume, on page 219
- profile charging tariff-time-change, on page 219
- profile charging triggers, on page 220
- profile charging-characteristics, on page 221
- profile charging-characteristics network-element-profile-list, on page 221
- profile compliance, on page 221

- profile compliance service, on page 222
- profile compliance service n1-version, on page 222
- profile compliance service n2-version, on page 223
- profile compliance service namf-version, on page 224
- profile compliance service nchf-version, on page 224
- profile compliance service nnrf-disc-version, on page 225
- profile compliance service nnrf-nfm-version, on page 226
- profile compliance service npcf-version, on page 226
- profile compliance service nsmf-version, on page 227
- profile compliance service nudm-sdm-version, on page 228
- profile compliance service nudm-uecm-version, on page 229
- profile compliance service threegpp23502-version, on page 229
- profile content-filtering category database, on page 230
- profile content-filtering category database directory, on page 230
- profile dnn, on page 231
- profile dnn accounting, on page 234
- profile dnn authentication algorithm, on page 234
- profile dnn authentication secondary, on page 235
- profile dnn authorization, on page 235
- profile dnn dnn, on page 236
- profile dnn dnn nw-fu-conf, on page 236
- profile dnn dnn rmgr-conf, on page 237
- profile dnn dns primary, on page 237
- profile dnn dns secondary, on page 237
- profile dnn network-element-profiles, on page 238
- profile dnn nssai, on page 238
- profile dnn outbound, on page 239
- profile dnn primary-plmn, on page 239
- profile dnn session type, on page 240
- profile dnn ssc-mode, on page 240
- profile dnn timeout, on page 241
- profile dnn upf, on page 242
- profile dns-proxy, on page 242
- profile dns-proxy servers, on page 243
- profile ecgi-group, on page 244
- profile ecgi-group ecgis, on page 244
- profile ecgi-group ecgis ecgi, on page 245
- profile ecgi-group ecgis ecgi range, on page 245
- profile emergency-profile, on page 245
- profile failure-handling, on page 246
- profile failure-handling interface gtpc message, on page 246
- profile failure-handling interface gtpc message cause-code-type cause-code, on page 247
- profile failure-handling interface gtpc message cause-code-type cause-code action, on page 247
- profile failure-handling interface n11, on page 248
- profile failure-handling interface n11 message, on page 248
- profile failure-handling interface n11 message cause-code-value cause-code, on page 249

- profile failure-handling interface n11 message cause-code-value cause-code action, on page 249
- profile failure-handling interface pfcf message, on page 250
- profile failure-handling interface pfcf message cause-code-type-est cause-code, on page 250
- profile failure-handling interface pfcf message cause-code-type-est cause-code action, on page 251
- profile failure-handling interface pfcf message cause-code-type-mod cause-code, on page 251
- profile failure-handling interface pfcf message cause-code-type-mod cause-code action, on page 252
- profile failure-handling interface pfcf message cause-code-type-sessreport cause-code, on page 252
- profile failure-handling interface pfcf message cause-code-type-sessreport cause-code action, on page 253
- profile failure-handling interface sxa message, on page 253
- profile failure-handling interface sxa message cause-code-type-est cause-code, on page 254
- profile failure-handling interface sxa message cause-code-type-est cause-code action, on page 254
- profile icmpv6, on page 255
- profile icmpv6 options, on page 255
- profile location-area-group, on page 256
- profile n3-tunnel, on page 257
- profile n3-tunnel buffer, on page 257
- profile ncgi-group, on page 258
- profile ncgi-group ncgis, on page 258
- profile ncgi-group ncgis ncgi, on page 258
- profile ncgi-group ncgis ncgi range, on page 259
- profile network-element amf, on page 259
- profile network-element amf discovery, on page 260
- profile network-element amf query-params, on page 260
- profile network-element chf, on page 261
- profile network-element chf discovery, on page 262
- profile network-element chf query-params, on page 262
- profile network-element pcf, on page 262
- profile network-element pcf discovery, on page 264
- profile network-element pcf query-params, on page 264
- profile network-element udm, on page 265
- profile network-element upf, on page 266
- profile network-element upf n4-peer-address, on page 267
- profile nf-client nf-type amf amf-profile, on page 268
- profile nf-client nf-type amf amf-profile locality, on page 268
- profile nf-client nf-type amf amf-profile locality service name type, on page 268
- profile nf-client nf-type amf amf-profile locality service name type endpoint-profile, on page 269
- profile nf-client nf-type amf amf-profile locality service name type endpoint-profile endpoint-name, on page 270
- profile nf-client nf-type amf amf-profile locality service name type endpoint-profile version uri-version, on page 271
- profile nf-client nf-type ausf ausf-profile, on page 271
- profile nf-client nf-type ausf ausf-profile locality, on page 272
- profile nf-client nf-type ausf ausf-profile locality service name type, on page 272
- profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile, on page 272

- [profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile endpoint-name](#), on page 273
- [profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile version uri-version](#), on page 274
- [profile nf-client nf-type chf chf-profile](#), on page 275
- [profile nf-client nf-type chf chf-profile locality](#), on page 275
- [profile nf-client nf-type chf chf-profile locality service name type](#), on page 275
- [profile nf-client nf-type chf chf-profile locality service name type endpoint-profile](#), on page 276
- [profile nf-client nf-type chf chf-profile locality service name type endpoint-profile endpoint-name](#), on page 277
- [profile nf-client nf-type chf chf-profile locality service name type endpoint-profile version uri-version](#), on page 278
- [profile nf-client nf-type eir eir-profile](#), on page 278
- [profile nf-client nf-type eir eir-profile locality](#), on page 278
- [profile nf-client nf-type eir eir-profile locality service name type](#), on page 279
- [profile nf-client nf-type eir eir-profile locality service name type endpoint-profile](#), on page 279
- [profile nf-client nf-type eir eir-profile locality service name type endpoint-profile endpoint-name](#), on page 280
- [profile nf-client nf-type eir eir-profile locality service name type endpoint-profile version uri-version](#), on page 281
- [profile nf-client nf-type pcf pcf-profile](#), on page 282
- [profile nf-client nf-type pcf pcf-profile locality](#), on page 282
- [profile nf-client nf-type pcf pcf-profile locality service name type](#), on page 282
- [profile nf-client nf-type smf smf-profile](#), on page 283
- [profile nf-client nf-type smf smf-profile locality](#), on page 283
- [profile nf-client nf-type udm udm-profile](#), on page 284
- [profile nf-client nf-type udm udm-profile locality](#), on page 284
- [profile nf-client nf-type udm udm-profile locality service name type](#), on page 285
- [profile nf-client-failure nf-type amf profile failure-handling](#), on page 285
- [profile nf-client-failure nf-type amf profile failure-handling service name type](#), on page 286
- [profile nf-client-failure nf-type amf profile failure-handling service name type message type](#), on page 286
- [profile nf-client-failure nf-type ausf profile failure-handling](#), on page 287
- [profile nf-client-failure nf-type ausf profile failure-handling service name type](#), on page 287
- [profile nf-client-failure nf-type ausf profile failure-handling service name type message type](#), on page 287
- [profile nf-client-failure nf-type chf profile failure-handling](#), on page 288
- [profile nf-client-failure nf-type chf profile failure-handling service name type](#), on page 288
- [profile nf-client-failure nf-type chf profile failure-handling service name type message type](#), on page 289
- [profile nf-client-failure nf-type eir profile failure-handling](#), on page 289
- [profile nf-client-failure nf-type eir profile failure-handling service name type](#), on page 290
- [profile nf-client-failure nf-type eir profile failure-handling service name type message type](#), on page 290
- [profile nf-client-failure nf-type pcf profile failure-handling](#), on page 291
- [profile nf-client-failure nf-type pcf profile failure-handling service name type](#), on page 291
- [profile nf-client-failure nf-type udm profile failure-handling](#), on page 292
- [profile nf-client-failure nf-type udm profile failure-handling service name type](#), on page 292
- [profile nf-pair nf-type](#), on page 293

- [profile nf-pair nf-type cache](#), on page 294
- [profile nf-pair nf-type cache invalidation](#), on page 294
- [profile nf-pair nf-type cache invalidation true](#), on page 294
- [profile nf-pair nf-type locality](#), on page 295
- [profile pscsf](#), on page 295
- [profile pscsf fqdn](#), on page 296
- [profile pscsf pscsf-selection](#), on page 296
- [profile pscsf v4-list](#), on page 296
- [profile pscsf v4-list list-entry](#), on page 297
- [profile pscsf v4-list list-entry primary](#), on page 297
- [profile pscsf v4-list list-entry secondary](#), on page 297
- [profile pscsf v4-list list-entry tertiary](#), on page 298
- [profile pscsf v4v6-list](#), on page 298
- [profile pscsf v4v6-list list-entry](#), on page 298
- [profile pscsf v4v6-list list-entry primary](#), on page 299
- [profile pscsf v4v6-list list-entry secondary](#), on page 299
- [profile pscsf v4v6-list list-entry tertiary](#), on page 300
- [profile pscsf v6-list](#), on page 300
- [profile pscsf v6-list list-entry](#), on page 301
- [profile pscsf v6-list list-entry primary](#), on page 301
- [profile pscsf v6-list list-entry secondary](#), on page 301
- [profile pscsf v6-list list-entry tertiary](#), on page 302
- [profile ppd](#), on page 302
- [profile ppd dscp-list](#), on page 303
- [profile qos](#), on page 303
- [profile qos ambr](#), on page 304
- [profile qos arp](#), on page 304
- [profile qos dscp-map qi5](#), on page 305
- [profile qos dscp-map qi5 arp-priority-level](#), on page 305
- [profile qos dscp-map qi5 arp-priority-level dscp-info](#), on page 306
- [profile qos dscp-map qi5 arp-priority-level dscp-info user-datagram](#), on page 307
- [profile qos dscp-map qi5 dscp-info](#), on page 307
- [profile qos dscp-map qi5 dscp-info user-datagram](#), on page 308
- [profile qos max](#), on page 308
- [profile radius](#), on page 309
- [profile radius accounting](#), on page 309
- [profile radius accounting attribute](#), on page 310
- [profile radius accounting detect-dead-server](#), on page 311
- [profile radius attribute](#), on page 311
- [profile radius detect-dead-server](#), on page 311
- [profile radius server](#), on page 312
- [profile radius server-group](#), on page 313
- [profile radius server-group server](#), on page 313
- [profile radius-dynamic-author](#), on page 313
- [profile radius-dynamic-author client](#), on page 314
- [profile sgw](#), on page 314

- profile sgw ddn, on page 315
- profile sgw internal-qos, on page 316
- profile sgw plmn-list, on page 316
- profile sgw-qos-profile, on page 317
- profile sgw-qos-profile dscp-map operator-defined-qci, on page 317
- profile sgw-qos-profile dscp-map operator-defined-qci gbr arp-priority-level, on page 318
- profile sgw-qos-profile dscp-map operator-defined-qci gbr arp-priority-level dscp-info, on page 318
- profile sgw-qos-profile dscp-map operator-defined-qci gbr dscp-info, on page 323
- profile sgw-qos-profile dscp-map operator-defined-qci non-gbr, on page 328
- profile sgw-qos-profile dscp-map operator-defined-qci non-gbr arp-priority-level, on page 329
- profile sgw-qos-profile dscp-map operator-defined-qci non-gbr arp-priority-level dscp-info, on page 329
- profile sgw-qos-profile dscp-map operator-defined-qci non-gbr dscp-info, on page 334
- profile sgw-qos-profile dscp-map qci, on page 339
- profile sgw-qos-profile dscp-map qci arp-priority-level, on page 340
- profile sgw-qos-profile dscp-map qci arp-priority-level dscp-info, on page 340
- profile sgw-qos-profile dscp-map qci default, on page 345
- profile sgw-qos-profile dscp-map qci default dscp-info, on page 345
- profile sgw-qos-profile dscp-map qci gbr dscp-info, on page 350
- profile sgw-qos-profile dscp-map qci non-gbr dscp-info, on page 355
- profile smf, on page 361
- profile smf plmn-id, on page 362
- profile smf plmn-list, on page 363
- profile smf service, on page 363
- profile smf service http-endpoint, on page 365
- profile tai-group, on page 365
- profile tai-group tais, on page 365
- profile tai-group tais tac, on page 366
- profile tai-group tais tac range, on page 366
- profile upf-group, on page 366
- profile upf-group failure-profile, on page 367
- profile upf-group heartbeat, on page 368
- profile wps, on page 368
- profile wps dscp, on page 369
- radius, on page 369
- radius acct-server, on page 370
- radius auth-server, on page 370
- radius-dyn-auth, on page 370
- radius-dyn-auth clients, on page 370
- resources info, on page 370
- rpc all, on page 371
- running-status info, on page 371
- sessions affinity, on page 371
- sessions commit-pending, on page 371
- show subscriber, on page 372
- system-diagnostics session-consistency, on page 372
- test dns-query, on page 372

- [test-radius](#), on page 373
- [test-radius accounting](#), on page 373
- [test-radius authentication](#), on page 374

SMF Executive Commands

aaa

Configures AAA based user management parameters.

Privilege

Security Administrator, Administrator

Command Modes

Exec

Syntax Description

```
aaa { authentication { users list_of_local_users admin change-password
old-password user_password new-password user_password confirm-password
user_password } }
```

users *list_of_local_users*

Specify the user name.

Must be a string.

old-password *user_password*

Specifies the current password of the user.

Must be a string.

new-password *user_password*

Specifies a new password of the user.

Must be a string.

confirm-password *user_password*

Enter the new password once again to change the password.

Must be a string.

Usage Guidelines

Use this command to configure the AAA based user management parameters.

cd

Configures the change directory command.

Privilege

Security Administrator, Administrator

Command Modes

Exec

Syntax Description `cd directory.ssh`

directory

Specify the directory path.

Must be an alphanumeric string.

Usage Guidelines Use this command to configure the change directory command.

cdl clear

Configures the Cisco Common Data Layer (CDL) parameters to delete the database sessions.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `cdl clear sessions [db-name db_name | filter { condition { ends-with | match | starts-with } key key_value } | map-id map_id]`

db-name db_name

Specifies the database name to be queried for deleting the data.

Must be a string of 1 to 16 characters.

key key_value

Specifies the query value.

Must be a string of 0 to 512 characters.

map-id map_id

Specifies the map ID to delete the data for a map.

Must be an integer in the range of 0-1024.

filter condition { ends-with | match | starts-with }

Specify the query expression to filter the results of query.

Usage Guidelines Use this command to delete the CDL database sessions.

cdl show sessions

Configures the CDL parameters to display the session details.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description

```
cdl show sessions count { detailed { db-name db_name | filter { condition
{ ends-with | match | starts-with } | key key_value } | limit limit | map-id
map_id } | summary { db-name db_name | filter { condition { ends-with |
match | starts-with } | key key_value } | limit limit | map-id map_id }
```

count

Display the session count information.

detailed

Display the session details with data.

summary

Display the session details without data.

db-name *db_name*

Specifies the database name to be queried for displaying the session details.

Must be a string of 1 to 16 characters.

key *key_value*

Specifies the query value.

Must be a string of 0 to 512 characters.

map-id *map_id*

Specifies the map ID to display the data for a map.

Must be an integer in the range of 0-1024.

limit *limit*

Specifies the maximum number of records to display.

Must be an integer in the range of 1 to 500 characters.

filter condition { ends-with | match | starts-with }

Specify the query expression to filter the results of query.

Usage Guidelines

Use this command to display the session details.

cdl show status

Configures the CDL parameters to display the status of the database.

Privilege

Security Administrator, Administrator

Command Modes

Exec

Syntax Description	<code>cdl status db-name <i>db_name</i></code> db-name <i>db_name</i> Specifies the database name for displaying the corresponding status. Must be a string of 1 to 16 characters.
Usage Guidelines	Use this command to display the status of the queried database.

clear ipam

Clears the IPAM operational data.

Privilege	Security Administrator, Administrator
Command Modes	Exec
Syntax Description	<code>clear ipam</code>
Usage Guidelines	Use this command to clear the IPAM operational data.

clear subscriber

Clears the subscriber data.

Privilege	Security Administrator, Administrator
Command Modes	Exec
Syntax Description	<code>clear subscriber</code>
Usage Guidelines	Use this command to clear the subscriber data.

commit

Configures the commit parameters.

Privilege	Security Administrator, Administrator
Command Modes	Exec
Syntax Description	<code>commit [abort { persist-id <i>persist_id</i> } confirm { persist-id <i>persist_id</i> } persist-id <i>persist_id</i>]</code> abort persist-id <i>persist_id</i> Specify to abort commit. Specify the persistence ID for the commit operation. Must be an integer.

confirm persist-id *persist_id*

Specify to confirm commit. Specify the persistence ID for the commit operation.

Must be an integer.

persist-id *persist_id*

Specify the persistence ID for the commit operation.

Must be an integer.

Usage Guidelines

Use this command to configure the commit parameters.

compare

Compares the running configuration to another configuration or a file.

Privilege

Security Administrator, Administrator

Command Modes

Exec

Syntax Description

compare file { *filename*[.kubernetes | .ssh/] | *configuration* }

***filename*[.kubernetes | .ssh/]**

Specify the file name or the directory path of the file to be compared.

Must be a string.

configuration

Specify the desired configuration to be compared against.

Must be a string.

Usage Guidelines

Use this command to compare the files.

config

Manipulates the software configuration information.

Privilege

Security Administrator, Administrator

Command Modes

Exec

Syntax Description

config [**exclusive** | **no-confirm** | **shared** | **terminal**]

exclusive

Specify to enter the exclusive configuration mode.

no-confirm

Specify to apply the command without asking for confirmation.

shared

Specify to enter the shared configuration mode.

terminal

Specify to enter the terminal configuration mode.

Usage Guidelines

Use this command to manipulate the software configuration information.

describe

Displays the command information.

Privilege

Security Administrator, Administrator

Command Modes

Exec

Syntax Description

describe *command*

command

Specify the command name to display detailed information about the command.

The command must be one of the following:

- **aaa**
- **cd**
- **cdl**
- **commit**
- **compare**
- **config**
- **describe**
- **dump**
- **exit**
- **help**
- **history**
- **id**
- **idle-timeout**
- **ignore-leading-space**

- **job**
- **leaf-prompting**
- **license**
- **logout**
- **monitor**
- **no**
- **paginate**
- **quit**
- **rcm**
- **screen-length**
- **screen-width**
- **send**
- **show**
- **show-defaults**
- **smiuser**
- **system**
- **terminal**
- **timestamp**
- **who**

Usage Guidelines Use this command to display the command specific information.

dump

Removes the transaction history.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `dump transactionhistory`

Usage Guidelines Use this command to remove the transaction history.

exit

Exits the current configuration mode and returns to the previous configuration mode.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description **exit**

Usage Guidelines Use this command to exit the current configuration mode and return to the previous configuration mode. When used in the Exec mode, exits the management session.

help

Displays help information for a specified command.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description **help** *command*

command

Specify the command name to display the corresponding help information.

The command must be one of the following:

- **aaa**
- **cd**
- **cdl**
- **commit**
- **compare**
- **config**
- **describe**
- **dump**
- **exit**
- **help**
- **history**
- **id**
- **idle-timeout**
- **ignore-leading-space**
- **job**
- **leaf-prompting**
- **license**

- **logout**
- **monitor**
- **no**
- **paginate**
- **quit**
- **rcm**
- **screen-length**
- **screen-width**
- **send**
- **show**
- **show-defaults**
- **smiuser**
- **system**
- **terminal**
- **timestamp**
- **who**

Usage Guidelines Use this command to view help information for a specified command.

history

Configures the command history cache size.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description **history** *history_size*

history_size

Specify the command history cache size.

Must be an integer in the range of 0-1000.

Usage Guidelines Use this command to configure the command history cache size.

id

Displays user ID information.

Privilege	Security Administrator, Administrator
Command Modes	Exec
Syntax Description	id
Usage Guidelines	Use this command to view the user ID information.

idle-timeout

Configures the maximum duration a command can remain idle in seconds after which the system automatically terminates the connection.

Privilege	Security Administrator, Administrator
Command Modes	Exec
Syntax Description	idle-timeout <i>duration</i>
	<i>duration</i>
	Specify the idle timeout duration in seconds.
	Must be an integer in the range of 1-8192.

Usage Guidelines Use this command to configure the maximum duration a command can remain idle.

ignore-leading-space

Configures whether to ignore or consider the leading whitespace at the beginning of a command.

Privilege	Security Administrator, Administrator
Command Modes	Exec
Syntax Description	ignore-leading-space { false true }
	{ false true }
	Specify false to ignore the leading whitespace, and true to consider it.
	Must be either "false" or "true".

Usage Guidelines Use this command to configure whether to ignore or consider leading whitespace at the beginning of a command.

job

Suspends the jobs that are running in the background.

Privilege	Security Administrator, Administrator
------------------	---------------------------------------

Command Modes Exec

Syntax Description `job stop job_id`

job_id

Specify the job ID for suspending the corresponding job.

Must be an integer.

Usage Guidelines Use this command to suspend the jobs that are running in the background.

leaf-prompting

Enables or disables automatic querying for leaf values.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `leaf-prompting { false | true }`

`{ false | true }`

Specify false to disable leaf prompting, and true to enable.

Must be either "false" or "true".

Usage Guidelines Use this command to automatically query for leaf values.

license smart deregister

Configures the license parameters for the VNF deregistration.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `license smart deregister`

`deregister`

Specify to deregister the VNF for smart licensing.

Usage Guidelines Use this command to configure the license parameters for the VNF deregistration.

license smart register

Configures the license parameters for the VNF registration.

Privilege Security Administrator, Administrator

Command Modes	Exec
Syntax Description	<p>license smart register force idtoken <i>token_id</i></p> <p>register Specify to register the VNF for Smart Licensing.</p> <p>force Specify to enable the force registration of the agent.</p> <p>idtoken <i>token_id</i> Specify the ID token to register the agent with. Must be an integer.</p>
Usage Guidelines	Use this command to configure the license parameters for the VNF registration.

license smart renew

Configures the license parameters for the VNF renewal.

Privilege	Security Administrator, Administrator
Command Modes	Exec
Syntax Description	<p>license smart renew { ID auth }</p> <p>renew Renew the smart agent IDs and authentication.</p> <p>ID Specify to renew the smart agent license registration information.</p> <p>auth Initiate the manual update of the license usage information with Cisco.</p>
Usage Guidelines	Use this command to configure the license parameters for the VNF renewal.

logout

Logout a specific session or a specific user from all sessions.

Privilege	Security Administrator, Administrator
Command Modes	Exec

Syntax Description `logout [session session_id | user user_name]`

session *session_id*

Specify the session ID from the possible completion options.

Must be a string.

user *user_name*

Specify the user name or the user process from the possible completion options.

Must be a string.

Usage Guidelines Use this command to log out a specific session or a specific user from all sessions.

monitor protocol

Configures the SMF to monitor the protocol.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `monitor protocol interface interface_name [capture-duration duration]`

interface *interface_name*

Specify the name of interface on which PCAP is captured.

Must be a string.

capture-duration *duration*

Specify the duration, in seconds, during which PCAP is captured. The default value is 300 seconds.

Must be an integer.

Usage Guidelines Use this command to monitor the protocol.

monitor subscriber

Configures the SMF to monitor the subscribers.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `monitor subscriber supi supi [capture-duration duration] | subscriber-dump filename file_name | subscriber-list`

supi *supi*

Specify the subscriber identifier.

Must be a string.

capture-duration *duration*

Specify the duration, in seconds, during which PCAP is captured. The default value is 300 seconds.

Must be an integer.

filename *file_name*

Specify the path of the file name to be dumped.

Must be a string.

Usage Guidelines Use this command to monitor the subscribers.

no

Restores the command history cache size to its default setting. See the [history](#) command.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `no history`

Usage Guidelines Use this command to configure the command history cache size to its default setting. For more details, see the [history](#) command.

paginate

Configures whether or not to paginate CLI command output.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `paginate { false | true }`

{ false | true }

Specify false to disable paginating CLI command output, and true to enable.

Must be either "false" or "true".

Usage Guidelines Use this command to paginate the command output.

quit

Exits the management session.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `quit`

Usage Guidelines Use this command to exit the management session.

rcm switchover

Configures Redundancy and Configuration Manager (RCM) switchover operation.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `rcm switchover source ip_address destination ip_address`

source *ip_address*

Specify the source IP address.

Must be an IP address.

destination *ip_address*

Specify the destination IP address.

Must be an IP address.

Usage Guidelines Use this command to configure RCM switchover operation.

screen-length

Configures the number of rows of text that the terminal screen displays.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `screen-length number_of_rows`

number_of_rows

Specify the number of rows that the terminal screen displays.

Must be an integer.

Usage Guidelines Use this command to set the number of rows that the terminal screen displays.

screen-width

Configures the number of columns that the terminal screen displays.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description **screen-width** *number_of_columns*

number_of_columns

Specify the number of columns that the terminal screen displays.

Must be an integer.

Usage Guidelines Use this command to set the number of columns that the terminal screen displays.

send

Sends messages to the terminal of a specific user or all users.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description **send** *user message*

user

Specify the user to whom the message must be sent.

Must be a string. Select from the possible completion options.

message

Specify the message that must be sent.

Must be a string.

Usage Guidelines Use this command to send messages to the terminal of a specific user or to all users.

show

Displays the system information.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `show system_component`

system_component

Specify the component to view the information.

Must be a string. Select from the possible completion options.

Usage Guidelines Use this command to view the system information.

show-defaults

Displays the default configuration.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `show-defaults { false | true }`

{ false | true }

Specify whether to display or hide the default values. To display, select true. Otherwise, select false.

Must be either "false" or "true".

Usage Guidelines Use this command to view the default configuration.

smiuser

Configures the Subscriber Microservices Infrastructure (SMI) user account parameters.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `smiuser { add-group groupname group_name | add-user { username username | password password } | change-password { username username | current_password current_password | new_password new_password | confirm_password new_password | password_expire_days expire_days } | change-self-password { current_password current_password | new_password new_password | confirm_password new_password | password_expire_days expire_days } | delete-group groupname group_name | delete-user username username | unassign-user-group { groupname groupname_pam | username username_pam } | update-password-length length password_length }`

username username

Specify the username.

Must be a string.

password *password*

Specify the user password.

Must be a string.

confirm_password *new_password*

Confirm the new password.

Must be a string.

current_password *current_password*

Specify the current password.

Must be a string.

new_password *new_password*

Specify the new password.

Must be a string.

password_expire_days *expire_days*

Specify the number of days before the password expires.

Must be an integer.

groupname *group_name*

Specify the group name.

Must be a string.

groupname *groupname_pam*

Specify the group name in PAM.

Must be a string.

username *username_pam*

Specify the user name in PAM.

Must be a string.

length *password_length*

Specify the minimum password length.

Must be an integer.

Usage Guidelines

Use this command to configure the smiuser parameters.

system

Configures the NF's system operations.

Privilege

Security Administrator, Administrator

Command Modes

Exec

Syntax Description

system { **ops-center stop** | **synch { start | stop }** | **upgrade** | **uuid-override new-uuid** *uuid_value* }

ops-center stop

Stop the synching of configuration.

synch { start | stop }

Starts or stops the synching of configuration,

upgrade

Initiates the upgrade of a product.

uuid-override new-uuid *uuid_value*

Change the Universally Unique Identifier (UUID) to a new value.

Must be a string.

Usage Guidelines

Use this command to display the NF's system operations.

terminal

Configures the type of terminal.

Privilege

Security Administrator, Administrator

Command Modes

Exec

Syntax Description

terminal *terminal_type*

terminal_type

Specify the terminal type.

Must be one of the following:

- ansi
- generic
- linux
- vt100

- xterm

Usage Guidelines Use this command to configure the terminal type.

timestamp

Configures the timestamp parameters.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `timestamp { disable | enable }`

`{ disable | enable }`

Enable or disable the timestamp display.

Usage Guidelines Use this command to configure the timestamp.

who

Displays information on currently logged on users.

Privilege Security Administrator, Administrator

Command Modes Exec

Syntax Description `who`

Usage Guidelines Use this command to view information on currently logged on users. The command output displays the Session, User, Context, From (IP address), Protocol, Date, and Mode information.

active-charging service

Configures the Active Charging Service (ACS).

Command Modes Exec > Global Configuration (config)

Syntax Description `active-charging service service_name`

service_name

Specify the Active Charging Service name.

Must be a string.

Usage Guidelines Use this command to create and configure the Active Charging Service. Enters the ACS Configuration mode (config-service-<active_charging_service_name>).

You can configure a maximum of one element with this command.

active-charging service bandwidth-policy

Configures the ACS Bandwidth Policy.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*)

Syntax Description **bandwidth-policy** *bandwidth_policy_name*

Syntax Description **no bandwidth-policy** *policy_name*

bandwidth_policy_name

Specify the ACS Bandwidth Policy name.

Must be a string.

Usage Guidelines Use this command to configure the ACS Bandwidth Policy. Enters the Bandwidth Policy Configuration mode. You can configure a maximum of 64 elements with this command.

active-charging service bandwidth-policy flow limit-for-bandwidth id

Configures bandwidth ID and bandwidth policy group parameters.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Bandwidth Policy Configuration (config-service-*bandwidth_policy_name*)

Syntax Description **flow limit-for-bandwidth id** *id* **group-id** *group_id*

group-id group_id

Specify the bandwidth policy group ID.

Must be an integer in the range of 1-65535.

id id

Specify the bandwidth ID.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to configure the bandwidth ID and bandwidth policy group parameters. You can configure a maximum of 1000 elements with this command.

active-charging service bandwidth-policy group-id

Configures bandwidth policy group ID.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Bandwidth Policy Configuration

Syntax Description **group-id** *group_id*

group_id

Specify the bandwidth policy group ID.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to configure the bandwidth policy group ID.

You can configure a maximum of 1000 elements with this command.

active-charging service bandwidth-policy group-id direction downlink grpPeakBwp

Configures the peak bandwidth parameters.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-active_charging_service_name) > Bandwidth Policy Configuration (config-bandwidth-policy-policy_name)

Syntax Description **group-id** *group_id* **direction**{ **downlink** | **uplink** } *peak_data_rate_option* *peak_data_rate_value* **peak-burst-size** *peak_burst_size* **violate-action** *violate_action* [*committed_data_rate_option* *committed_data_rate_value* **committed-burst-size** *committed_burst_size* [**exceed-action** *exceed_action*]]

committed-burst-size *committed_burst_size*

Specify the committed burst size in bytes.

Must be an integer in the range of 1-4294967295.

exceed-action *exceed_action*

Specify the action to be taken if the committed data rate is surpassed.

Must be one of the following:

- **discard**: Discards the packet.
- **lower-ip-precedence**: Lowers the IP precedence of the packet.

peak-burst-size *peak_burst_size*

Specify the peak burst size in bytes.

Must be an integer in the range of 1-4294967295.

violate-action *violate_action*

Specify the action to be taken if Peak Data Rate is surpassed.

Must be one of the following:

- **discard**: Discards the packet.
- **lower-ip-precedence**: Lowers the IP precedence of the packet.

committed_data_rate_option

Specify the committed data rate option.

Must be one of the following:

- **committed-data-rate-kbps**: Committed data rate in kilo bits per second. This can also be used to specify GBR for Bearer Binding (without the exceed-action).
- **committed-data-rate**: Committed data rate in bits per second. This can also be used to specify GBR for flow binding (without the exceed-action).

committed_data_rate_value

Specify the committed data rate in bits per second, or in kilo bits per second.

Must be an integer in the range of 1-4294967295.

peak_data_rate_option

Specify the peak data rate option.

Must be one of the following:

- **peak-data-rate-kbps**: Peak data rate in kilo bits per second.
- **peak-data-rate**: Peak data rate in bits per second.

peak_data_rate_value

Specify the bandwidth in bits per second or in kilo bits per second.

Must be an integer in the range of 1-4294967295.

Usage Guidelines

Use this command to configure bandwidth control in uplink or downlink direction.

active-charging service bandwidth-policy group-id direction uplink grpPeakBwp

Configures the peak bandwidth parameters.

Command Modes

Exec > Global Configuration (config) > ACS Configuration (config-service-*active_charging_service_name*) > Bandwidth Policy Configuration (config-bandwidth-policy-*policy_name*)

Syntax Description

```
group-id group_id direction{ downlink | uplink } peak_data_rate_option
peak_data_rate_value peak-burst-size peak_burst_size violate-action violate_action
[ committed_data_rate_option committed_data_rate_value committed-burst-size
committed_burst_size [ exceed-action exceed_action ] ]
```

committed-burst-size *committed_burst_size*

Specify the committed burst size in bytes.

Must be an integer in the range of 1-4294967295.

exceed-action *exceed_action*

Specify the action to be taken if the committed data rate is surpassed.

Must be one of the following:

- **discard**: Discards the packet.
- **lower-ip-precedence**: Lowers the IP precedence of the packet.

peak-burst-size *peak_burst_size*

Specify the peak burst size in bytes.

Must be an integer in the range of 1-4294967295.

violate-action *violate_action*

Specify the action to be taken if Peak Data Rate is surpassed.

Must be one of the following:

- **discard**: Discards the packet.
- **lower-ip-precedence**: Lowers the IP precedence of the packet.

committed_data_rate_option

Specify the committed data rate option.

Must be one of the following:

- **committed-data-rate-kbps**: Committed data rate in kilo bits per second. This can also be used to specify GBR for Bearer Binding (without the exceed-action).

- **committed-data-rate**: Committed data rate in bits per second. This can also be used to specify GBR for flow binding (without the exceed-action).

committed_data_rate_value

Specify the committed data rate in bits per second, or in kilo bits per second.

Must be an integer in the range of 1-4294967295.

peak_data_rate_option

Specify the peak data rate option.

Must be one of the following:

- **peak-data-rate-kbps**: Peak data rate in kilo bits per second.
- **peak-data-rate**: Peak data rate in bits per second.

peak_data_rate_value

Specify the bandwidth in bits per second or in kilo bits per second.

Must be an integer in the range of 1-4294967295.

Usage Guidelines

Use this command to configure bandwidth control in uplink or downlink direction.

active-charging service buffering-limit

Configures flow- or session-based packet buffering.

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration
(config-service-*active_charging_service_name*)

Syntax Description

buffering-limit{ [**flow-max-packets** *flow_max_packets*] [**subscriber-max-packets** *subscriber_max_packets*] }

Syntax Description

no buffering-limit

flow-max-packets *flow_max_packets*

Specify the maximum number of packets to be buffered per flow.

Must be an integer in the range of 1-255.

subscriber-max-packets *subscriber_max_packets*

Specify the maximum number of packets to be buffered per subscriber.

Must be an integer in the range of 1-255.

Usage Guidelines

Use this command to configure flow/session-based packet buffering configuration.

active-charging service charging-action

Configures ACS charging action.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name)

Syntax Description **charging-action** *charging_action_name* [**content-id** *content_id*]

content-id *content_id*

Specify the content ID to use in the generated billing records, as well as the AVP used by the Credit Control Application, such as the "Rating-Group" AVP for use by the Diameter Credit Control Application (DCCA). This identifier assists the carrier's billing post processing and is also used by the credit-control system to use independent quotas for different value of content-id.

Must be an integer in the range of 1-2147483647.

nexthop-forwarding-address{ *ipv4_address* | *ipv6_address* }

Specify the nexthop forwarding address for this charging action. When an uplink packet matches a rule and a charging action is applied to it this nexthop forwarding address is used.

qos-class-identifier *qos_class_id*

Specify the QoS Class Identifier (QCI).

Must be an integer in the range of 1-9.

service-identifier *service_id*

Specify the service identifier to use in the generated billing records, as well as the AVP used by the Credit Control Application, such as the "Service-Identifier" AVP for use by DCCA. This is a more general classifier than content-id.

Must be an integer in the range of 1-2147483647.

tft-notify-ue

Specify whether or not TFT updates are sent to UE. Use this command to suppress the selected TFT updates from being sent to the UE. This helps to identify if the appropriate TFT defined in the charging action needs to be sent to the UE or not.

charging_action_name

Specify the charging action name.

Must be a string.

Usage Guidelines

Use this command to create and configure ACS charging action. A charging action represents actions to be taken when a configured rule is matched. Actions could range from generating an accounting record (for example, an EDR) to dropping the IP packet, etc. The charging action will also determine the metering principle

whether to count retransmitted packets and which protocol field to use for billing (L3/L4/L7 etc). Changes to the Charging Action Configuration mode (config-charging-action-<charging_action_name>).

Example

The following command creates a charging action named test123:

```
charging-action action123
```

active-charging service charging-action allocation-retention-priority

Configures the Allocation Retention Priority (ARP).

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration (config-service-charging_action_name)

Syntax Description

allocation-retention-priority *priority*{ **pci** *pci_value* | **pvi** *pvi_value* }

pci *pci_value*

Specify the Pre-emption Capability Indicator (PCI).

Must be one of the following:

- **MAY_PREEMPT**
- **NOT_PREEMPT**

pvi *pvi_value*

Specify the Pre-emption Vulnerability Indicator (PVI).

Must be one of the following:

- **NOT_PREEMPTABLE**
- **PREEMPTABLE**

priority

Specify the priority.

Must be an integer in the range of 1-15.

Usage Guidelines

This command configures the ARP, which indicates the priority of allocation and retention of the service data flow. The ARP resolves conflicts in demand for network resources. At the time of resource crunch, this parameter prioritizes allocation of resources during bearer establishment and modification. In a congestion situation, a lower ARP flow may be dropped to free up capacity. Once a service flow is successfully established, this parameter plays no role in quality of service (QoS) experienced by the flow.

Example

The following command configures the ARP to 10:

```
allocation-retention-priority 10
```

active-charging service charging-action billing-action

Configures the billing action for packets that match specific ruledefs.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description **billing-action egcdr**

egcdr

Specify to enable eG-CDR billing.

Usage Guidelines Use this command to enable eG-CDR type of billing for content matching this charging action.

active-charging service charging-action cca charging credit

Configures the Credit Control Charging Credit behavior.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description **cca charging credit [rating-group coupon_id] [preemptively-request]**

preemptively-request

Specify preemptively requested charging credit behavior.

rating-group coupon_id

Specify the coupon ID used in prepaid charging as rating-group which maps to the coupon ID for prepaid customer. This option also assigns different content-types for the same charging action depending upon whether or not prepaid is enabled. This rating-group overrides the content ID, if present in the same charging-action for the prepaid customer in Diameter Credit Control Application (DCCA). But, only the content IDs will be used in eG-CDRs irrespective of the presence of rating-group in that charging action.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the RADIUS/Diameter Prepaid Credit Control Charging Credit behavior.

active-charging service charging-action flow action

Configures to take redirect-url or terminate-flow action on packets that match ruledefs.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description **flow action** { **redirect-url** *redirect_url* | **terminate-flow** }

redirect-url *redirect_url*

Specify to redirect URL.

Must be a string.

terminate-flow

Specify to terminate flow.

Usage Guidelines Use this command to specify the action to take on packets, for example to terminate.

Example

The following command configures the flow action to terminate:

```
flow action terminate-flow
```

active-charging service charging-action flow action discard

Configures discard action on packets that match ruledefs.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description **flow action discard** [**downlink** | **uplink**]

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure discard action on packets that match ruledefs.

active-charging service charging-action flow action readdress

Configures the readdress server for this charging action.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description **flow action readdress server**{ ipv4_address | ipv6_address }
server{ ipv4_address | ipv6_address }
Specify the readdress server IP address.

Usage Guidelines Use this command to configure the readdress server for this charging action.

active-charging service charging-action flow limit-for-bandwidth

For Session Control functionality, this command allows you to enable or disable bandwidth limiting.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description **flow limit-for-bandwidth id** bw_limit_id
id bw_limit_id
Specify the bandwidth limiting identifier.
Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to limit the bandwidth a subscriber uses in the uplink and downlink directions under Session Control.

active-charging service charging-action flow limit-for-bandwidth direction downlink peak-data-rate

Configures the peak data rate in bits per second.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration (config-charging-action-charging_action_name)

Syntax Description

Command Syntax: `flow limit-for-bandwidth direction{ downlink | uplink } peak-data-rate peak_data_rate_value peak-burst-size peak_burst_size violate-action violate_action [committed_data_rate_option committed_data_rate_value committed-burst-size committed_burst_size exceed-action exceed_action]`

committed-burst-size *committed_burst_size*

Specify the committed burst size in bytes.

Must be an integer in the range of 1-4294967295.

Default Value: 3000.

committed-data-rate *committed_data_rate*

Specify the Committed Data Rate in bits per second. This can also be used to specify GBR for Bearer Binding (without the exceed-action).

Must be an integer in the range of 1-4294967295.

Default Value: 144000.

exceed-action{ discard | lower-ip-precedence }

Specify the action to be taken if the committed data rate is surpassed.

Must be one of the following:

- **discard:** Specify to discard the packet.
- **lower-ip-precedence:** Specify to lower IP precedence of the packet.

peak-burst-size *peak_burst_size*

Specify the peak burst size in bytes.

Must be an integer in the range of 1-4294967295.

violate-action{ discard | lower-ip-precedence }

Specify the action to be taken if Peak Data Rate is surpassed.

Must be one of the following:

- **discard:** Discards the packet.
- **lower-ip-precedence:** Lowers the IP precedence of the packet.

peak_data_rate

Specify the peak data rate in bits per second.

Must be an integer in the range of 1-4294967295.

Usage Guidelines

Use this command to configure the peak data rate in bits per second.

active-charging service charging-action flow limit-for-bandwidth direction uplink peak-data-rate

Configures the peak data rate in bits per second.

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration
(config-service-*active_charging_service_name*) > Charging Action Configuration
(config-charging-action-*charging_action_name*)

Syntax Description

Command Syntax: **flow limit-for-bandwidth direction{ downlink | uplink } peak-data-rate** *peak_data_rate_value* **peak-burst-size** *peak_burst_size* **violate-action** *violate_action* [*committed_data_rate_option* *committed_data_rate_value* **committed-burst-size** *committed_burst_size* **exceed-action** *exceed_action*]

committed-burst-size *committed_burst_size*

Specify the committed burst size in bytes.

Must be an integer in the range of 1-4294967295.

Default Value: 3000.

committed-data-rate *committed_data_rate*

Specify the Committed Data Rate in bits per second. This can also be used to specify GBR for Bearer Binding (without the exceed-action).

Must be an integer in the range of 1-4294967295.

Default Value: 144000.

exceed-action{ discard | lower-ip-precedence }

Specify the action to be taken if the committed data rate is surpassed.

Must be one of the following:

- **discard**: Specify to discard the packet.
- **lower-ip-precedence**: Specify to lower IP precedence of the packet.

peak-burst-size *peak_burst_size*

Specify the peak burst size in bytes.

Must be an integer in the range of 1-4294967295.

violate-action{ discard | lower-ip-precedence }

Specify the action to be taken if Peak Data Rate is surpassed.

Must be one of the following:

- **discard**: Discards the packet.

- **lower-ip-precedence**: Lowers the IP precedence of the packet.

peak_data_rate

Specify the peak data rate in bits per second.

Must be an integer in the range of 1-4294967295.

Usage Guidelines Use this command to configure the peak data rate in bits per second.

active-charging service charging-action tft packet-filter

Configures the packet filter to use in Traffic Flow Template (TFT) sent to the MS.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Charging Action Configuration

Syntax Description **tft packet-filter** *packet_filter_name*

packet_filter_name

Specify the packet filter name.

Must be a string.

Usage Guidelines Use this command to configure the packet filter to be sent to the MS. Up to eight packet filters can be specified in a charging action.

You can configure a maximum of eight elements with this command.

Example

The following command configures the packet filter filter23 to be sent to the MS:

```
tft packet-filter filter23
```

active-charging service charging-action tos af11

Configures using Assured Forwarding 11 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Charging Action Configuration

Syntax Description **tos af11** [**downlink** | **uplink**]

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines

Use this command to configure using Assured Forwarding 11 Per Hop Behavior (PHB).

active-charging service charging-action tos af12

Configures using Assured Forwarding 12 Per Hop Behavior (PHB).

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration

Syntax Description

tos af12 [downlink | uplink]

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines

Use this command to configure using Assured Forwarding 12 Per Hop Behavior (PHB).

active-charging service charging-action tos af13

Configures using Assured Forwarding 13 Per Hop Behavior (PHB).

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration

Syntax Description

tos af13 [downlink | uplink]

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines

Use this command to configure using Assured Forwarding 13 Per Hop Behavior (PHB).

active-charging service charging-action tos af21

Configures using Assured Forwarding 21 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Charging Action Configuration

Syntax Description `tos af21 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 21 Per Hop Behavior (PHB).

active-charging service charging-action tos af22

Configures using Assured Forwarding 22 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Charging Action Configuration

Syntax Description `tos af22 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 22 Per Hop Behavior (PHB).

active-charging service charging-action tos af23

Configures using Assured Forwarding 23 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Charging Action Configuration

Syntax Description `tos af23 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 23 Per Hop Behavior (PHB).

active-charging service charging-action tos af31

Configures using Assured Forwarding 31 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Charging Action Configuration

Syntax Description `tos af31 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 31 Per Hop Behavior (PHB).

active-charging service charging-action tos af32

Configures using Assured Forwarding 32 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Charging Action Configuration

Syntax Description `tos af32 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 32 Per Hop Behavior (PHB).

active-charging service charging-action tos af33

Configures using Assured Forwarding 33 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Charging Action Configuration

Syntax Description `tos af33 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 33 Per Hop Behavior (PHB).

active-charging service charging-action tos af41

Configures using Assured Forwarding 41 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Charging Action Configuration

Syntax Description `tos af41 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 41 Per Hop Behavior (PHB).

active-charging service charging-action tos af42

Configures using Assured Forwarding 42 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Charging Action Configuration

Syntax Description `tos af42 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 42 Per Hop Behavior (PHB).

active-charging service charging-action tos af43

Configures using Assured Forwarding 43 Per Hop Behavior (PHB).

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration

Syntax Description `tos af43 [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Assured Forwarding 43 Per Hop Behavior (PHB).

active-charging service charging-action tos be

Configures using Best Effort Forwarding PHB.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration

Syntax Description `tos be [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Best Effort Forwarding Per Hop Behavior (PHB).

active-charging service charging-action tos ef

Configures using Expedited Forwarding PHB.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Charging Action Configuration

Syntax Description `tos ef [downlink | uplink]`

downlink

Specify only downlink packets.

uplink

Specify only uplink packets.

Usage Guidelines Use this command to configure using Expedited Forwarding Per Hop Behavior (PHB).

active-charging service charging-action tos lower-bits

Configures the least-significant 6 bits in the ToS byte with the specified numeric value.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Charging Action Configuration

Syntax Description `tos lower-bits value`

downlink

Specify the ToS only for downlink packets.

uplink

Specify the ToS only for uplink packets.

value

Specify the value.

Must be an integer in the range of 0-63.

Usage Guidelines Use this command to configure the least-significant 6 bits in the ToS byte with the specified numeric value.

active-charging service content-filtering category policy-id

Configures Content Filtering Policy ID.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*)

Syntax Description `content-filtering category policy-id policy_id`

Syntax Description `no content-filtering category policy-id policy_id`

policy_id

Specify the policy ID.

Must be an integer in the range of 1-4294967295.

Usage Guidelines Use this command to configure the Content Filtering Policy ID.

active-charging service content-filtering category policy-id analyze priority

Assigns priority to a Content Filtering Category in a Content Filtering Policy.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Content Filtering Category Policy Configuration (config-policy-id-content_filtering_policy_id)

Syntax Description **analyze priority** *priority*

priority

Specify the priority.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to assign priority to a Content Filtering Category in a Content Filtering Policy.

active-charging service content-filtering category policy-id analyze priority all

Configures all content to be rated.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Content Filtering Category Policy Configuration (config-policy-id-content_filtering_policy_id)

Syntax Description **analyze priority** *priority* **all** **action**{ **allow** | **content-insert** *string* }

action

Specify an action.

allow

Specify the allow action.

content-insert *string*

Specify the content insert action, and specify the string.

Must be a string.

Usage Guidelines Use this command to configure the all content to be rated.

active-charging service content-filtering category policy-id analyze priority category

Configures category of the content to be rated.

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration
(config-service-*active_charging_service_name*) > Content Filtering Category Policy Configuration
(config-policy-id-*cf_policy_id*)

Syntax Description

```
analyze priority priority category category_name{ allow | content-insert string }
```

action

Specify an action.

allow

Specify the allow action.

category *category_name*

Specify the category name.

Must be one of the following:

- **ABOR**
- **ADULT**
- **ADVERT**
- **ANON**
- **ART**
- **AUTO**
- **BACKUP**
- **BLACK**
- **BLOG**
- **BUSI**
- **CAR**
- **CDN**
- **CHAT**
- **CMC**
- **CRIME**

- CULT
- DRUG
- DYNAM
- EDU
- ENERGY
- ENT
- FIN
- FORUM
- GAMB
- GAME
- GLAM
- GOVERN
- HACK
- HATE
- HEALTH
- HOBBY
- HOSTS
- KIDS
- LEGAL
- LIFES
- MAIL
- MIL
- NEWS
- OCCULT
- PEER
- PERS
- PHOTO
- PLAG
- POLTIC
- PORN
- PORTAL
- PROXY

- REF
- REL
- SCI
- SEARCH
- SHOP
- SPORT
- STREAM
- SUIC
- SXED
- TECH
- TRAVE
- UNKNOW
- VIOL
- VOIP
- WEAP
- WHITE

content-insert *string*

Specify the content insert action, and specify the string.

Must be a string.

Usage Guidelines Use this command to configure the category of the content to be rated.

active-charging service content-filtering category policy-id analyze priority x-category

Configures unclassified category to be rated.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration
(config-service-*active_charging_service_name*) > Content Filtering Category Policy Configuration
(config-policy-id-*cf_policy_id*)

Syntax Description **analyze priority** *priority* **x-category** *xcategory_name* { **allow** | **content-insert** *string* }

action

Specify an action.

allow

Specify the allow action.

content-insert *string*

Specify the content insert action, and specify the string.

Must be a string.

x-category *xcategory_name*

Specify the x-category name.

Must be a string.

Usage Guidelines

Use this command to configures the unclassified category to be rated.

active-charging service credit-control group

Configures prepaid services for Diameter/RADIUS applications.

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration
(config-service-*active_charging_service_name*)

Syntax Description

credit-control group *cc_group_name*

cc_group_name

Specify the credit control group name.

Must be a string.

Usage Guidelines

Use this command to enable/disable Prepaid Credit Control Configuration for RADIUS/Diameter charging mode, and specify the credit control group.

active-charging service credit-control group associate

Associates failure handling template.

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration
(config-service-*active_charging_service_name*) > Credit Control Group Configuration
(config-group-*credit_control_group_name*)

Syntax Description

associate failure-handling-template *template_name*

failure-handling-template *template_name*

Specify the failure-handling template name.

Must be a string.

Usage Guidelines Use this command to associate failure handling template name.

active-charging service credit-control group diameter

Configures accepting or ignoring service ID in the Service-Identifier AVP defined in the Diameter dictionaries.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration
(config-service-*active_charging_service_name*) > Credit Control Group Configuration
(config-group-*credit_control_group_name*)

Syntax Description `diameter ignore-service-id{ false | true }`

ignore-service-id{ false | true }

Disables usage of Service ID.

Must be one of the following:

- false
- true

Default Value: false.

Usage Guidelines Use this command to ignore/accept service ID value in the Service-Identifier AVP in the Diameter dictionaries.

Example

The following command specifies to ignore service ID in the Diameter dictionaries:

```
diameter ignore-service-id
```

active-charging service credit-control group diameter origin

Configures the Diameter Credit Control Origin endpoint name.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration
(config-service-*active_charging_service_name*) > Credit Control Group Configuration
(config-group-*credit_control_group_name*)

Syntax Description `diameter origin endpoint origin_endpoint_name`

endpoint *origin_endpoint_name*

Specify the Diameter Credit Control Origin endpoint name.

Must be a string.

Usage Guidelines Use this command to configure the Diameter Credit Control Origin endpoint name.

active-charging service credit-control group diameter service-context-id

Configures the value to be sent in the Service-Context-Id AVP, which defines the context in which DCCA is used.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description **diameter service-context-id** *service_context_id*

service-context-id *service_context_id*

Specify the value to be sent in the Service-Context-Id AVP.

Must be a string.

Usage Guidelines Use this command to specify the value to be sent in the Service-Context-Id AVP, which defines the context in which DCCA is used.

active-charging service credit-control group diameter session

Configures Diameter Credit Control Session Failover.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description **diameter session failover**

failover

Enables Diameter Credit Control Session Failover.

Usage Guidelines Use this command to configure Diameter Credit Control Session Failover.

active-charging service credit-control group failure-handling initial-request

Configures Diameter Credit Control Failure Handling action to Initial-Request.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Credit Control Configuration (config-service-credit-control-group-group_name)

Syntax Description `failure-handling initial-request`

Usage Guidelines Use this command to configure Diameter Credit Control Failure Handling action to Initial-Request.

active-charging service credit-control group failure-handling initial-request continue

Configures the Diameter Credit Control Failure Handling action to Continue.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `failure-handling initial-request continue` *continue_action*

Syntax Description `failure-handling terminate-request continue` *continue_action*

Syntax Description `failure-handling update-request continue` *continue_action*

continue_action

Specify the continue action.

Must be one of the following:

- **go-offline-after-tx-expiry**: After Tx expiry, start offline charging.
- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines Use this command to configure the Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to continue.

active-charging service credit-control group failure-handling initial-request retry-and-terminate

Configures the Diameter Credit Control Failure Handling action to retry, and in case of failure, to terminate.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `failure-handling initial-request retry-and-terminate` *retry_and_terminate_action*

Syntax Description `failure-handling terminate-request retry-and-terminate` *retry_and_terminate_action*

Syntax Description `failure-handling update-request retry-and-terminate` *retry_and_terminate_action*

retry_and_terminate_action

Specify the retry-and-terminate action.

Must be one of the following:

- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines Configures Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to retry, and in case of failure, to terminate.

active-charging service credit-control group failure-handling initial-request terminate

Configures the Diameter Credit Control Failure Handling action as terminate.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description failure-handling initial-request terminate

Syntax Description failure-handling terminate-request terminate

Syntax Description failure-handling update-request terminate

Usage Guidelines Configures the Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to terminate.

active-charging service credit-control group failure-handling terminate-request

Configures the Diameter Credit Control Failure Handling action to Terminate-Request and Continue.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Credit Control Configuration (config-service-credit-control-group-group_name)

Syntax Description failure-handling terminate-request

Usage Guidelines Use this command to configure Diameter Credit Control Failure Handling action to Terminate-Request.

active-charging service credit-control group failure-handling terminate-request continue

Configures the Diameter Credit Control Failure Handling action to Continue.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Credit Control Group Configuration (config-group-*credit_control_group_name*)

Syntax Description `failure-handling initial-request continue continue_action`

Syntax Description `failure-handling terminate-request continue continue_action`

Syntax Description `failure-handling update-request continue continue_action`

continue_action

Specify the continue action.

Must be one of the following:

- **go-offline-after-tx-expiry**: After Tx expiry, start offline charging.
- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines Use this command to configure the Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to continue.

active-charging service credit-control group failure-handling terminate-request retry-and-terminate

Configures the Diameter Credit Control Failure Handling action to retry, and in case of failure, to terminate.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Credit Control Group Configuration (config-group-*credit_control_group_name*)

Syntax Description `failure-handling initial-request retry-and-terminate retry_and_terminate_action`

Syntax Description `failure-handling terminate-request retry-and-terminate retry_and_terminate_action`

Syntax Description `failure-handling update-request retry-and-terminate retry_and_terminate_action`

retry_and_terminate_action

Specify the retry-and-terminate action.

Must be one of the following:

- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines Configures Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to retry, and in case of failure, to terminate.

active-charging service credit-control group failure-handling terminate-request terminate

Configures the Diameter Credit Control Failure Handling action as terminate.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description failure-handling initial-request terminate

Syntax Description failure-handling terminate-request terminate

Syntax Description failure-handling update-request terminate

Usage Guidelines Configures the Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to terminate.

active-charging service credit-control group failure-handling update-request continue

Configures the Diameter Credit Control Failure Handling action to Continue.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description failure-handling initial-request continue continue_action

Syntax Description failure-handling terminate-request continue continue_action

Syntax Description failure-handling update-request continue continue_action

continue_action

Specify the continue action.

Must be one of the following:

- **go-offline-after-tx-expiry**: After Tx expiry, start offline charging.

- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines

Use this command to configure the Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to continue.

active-charging service credit-control group failure-handling update-request retry-and-terminate

Configures the Diameter Credit Control Failure Handling action to retry, and in case of failure, to terminate.

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration
(config-service-active_charging_service_name) > Credit Control Group Configuration
(config-group-credit_control_group_name)

Syntax Description

failure-handling initial-request retry-and-terminate *retry_and_terminate_action*

Syntax Description

failure-handling terminate-request retry-and-terminate
retry_and_terminate_action

Syntax Description

failure-handling update-request retry-and-terminate *retry_and_terminate_action*

retry_and_terminate_action

Specify the retry-and-terminate action.

Must be one of the following:

- **retry-after-tx-expiry**: After Tx expiry, retry.

Usage Guidelines

Configures Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to retry, and in case of failure, to terminate.

active-charging service credit-control group failure-handling update-request terminate

Configures the Diameter Credit Control Failure Handling action as terminate.

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration
(config-service-active_charging_service_name) > Credit Control Group Configuration
(config-group-credit_control_group_name)

Syntax Description

failure-handling initial-request terminate

Syntax Description

failure-handling terminate-request terminate

Syntax Description

failure-handling update-request terminate

Usage Guidelines Configures the Diameter Credit Control Failure Handling action for CCR-Initial/CCR-Terminate/CR-Update to terminate.

active-charging service credit-control group pending-traffic-treatment forced-reauth

Configures the Diameter Credit Control pending traffic treatment to forced reauthorization.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-active_charging_service_name)
> Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `pending-traffic-treatment forced-reauth{ drop | pass }`

drop

Specify to drop.

pass

Specify to pass.

Usage Guidelines Controls the pass/drop treatment of traffic while waiting for definitive credit information from the server. Use this command to configure the Diameter Credit Control pending traffic treatment to forced reauthorization.

active-charging service credit-control group pending-traffic-treatment noquota

Configures the Diameter Credit Control pending traffic treatment.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-active_charging_service_name)
> Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `pending-traffic-treatment noquota{ buffer | drop | pass }`

buffer

Specify to tentatively count/time traffic, and then buffer traffic pending arrival of quota. Buffered traffic will be forwarded and fully charged against the quota when the quota is eventually obtained and the traffic is passed.

drop

Specify to drop any traffic when there is no quota present.

pass

Specify to pass all traffic more or less regardless of quota state.

Usage Guidelines Use this command to configure the Diameter Credit Control pending traffic treatment.

active-charging service credit-control group pending-traffic-treatment noquota limited-pass

Enables limited access for subscribers when the OCS is unreachable.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*active_charging_service_name*) > Credit Control Group Configuration (config-group-*credit_control_group_name*)

Syntax Description `pending-traffic-treatment noquota limited-pass volume volume`

volume

Specify limited volume access to subscribers in case OCS is unreachable.

Must be an integer in the range of 1-4294967295.

Usage Guidelines Use this command to enable limited access for subscribers when the OCS is unreachable.

active-charging service credit-control group pending-traffic-treatment quota-exhausted

Configures the Diameter Credit Control pending traffic treatment to quota exhausted.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*active_charging_service_name*) > Credit Control Group Configuration (config-group-*credit_control_group_name*)

Syntax Description `pending-traffic-treatment quota-exhausted{ buffer | drop | pass }`

buffer

Specify to tentatively count/time traffic, and then buffer traffic pending arrival of quota. Buffered traffic will be forwarded and fully charged against the quota when the quota is eventually obtained and the traffic is passed.

drop

Drops any traffic when there is no quota present.

pass

Passes all traffic more or less regardless of quota state.

Usage Guidelines Use this command to configure the Diameter Credit Control pending traffic treatment to quota exhausted.

active-charging service credit-control group pending-traffic-treatment trigger

Configures the Diameter Credit Control pending traffic treatment to trigger.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*active_charging_service_name*) > Credit Control Group Configuration (config-group-*credit_control_group_name*)

Syntax Description `pending-traffic-treatment trigger{ drop | pass }`

drop

Specify to drop.

pass

Specify to pass.

Usage Guidelines Use this command to configure the Diameter Credit Control pending traffic treatment to trigger.

active-charging service credit-control group pending-traffic-treatment validity-expired

Configures the Diameter Credit Control pending traffic treatment to trigger.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*active_charging_service_name*) > Credit Control Group Configuration (config-group-*credit_control_group_name*)

Syntax Description `pending-traffic-treatment validity-expired{ drop | pass }`

drop

Specify to drop.

pass

Specify to pass.

Usage Guidelines Use this command to configure the Diameter Credit Control pending traffic treatment to trigger.

active-charging service credit-control group quota holding-time

Configures the Credit Control Quota Holding Time (QHT).

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Credit Control Configuration (config-group-*credit_control_group_name*)

Syntax Description **quota holding-time** *holding_time*

holding_time

Specify the holding time in seconds.

Must be an integer in the range of 1-4000000000.

Usage Guidelines This command sets the time-based quotas in the prepaid credit control service. Use this command to configure the Credit Control Quota Holding Time.

active-charging service credit-control group quota request-trigger

Configures Credit Control include/exclude packet causing threshold.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Credit Control Configuration (config-group-*credit_control_group_name*)

Syntax Description **quota request-trigger{ exclude-packet-causing-trigger | include-packet-causing-trigger }**

exclude-packet-causing-trigger

Specify to exclude packet causing trigger.

include-packet-causing-trigger

Specify to include packet causing trigger.

Usage Guidelines This command sets the time-based quotas in the prepaid credit control service. Use this command to configure the Credit Control include/exclude packet causing threshold.

active-charging service credit-control group timestamp-rounding

Configures the rounding mechanism for quota consumption.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Credit Control Group Configuration (config-group-*credit_control_group_name*)

Syntax Description `timestamp-rounding` *timestamp_rounding_action*

timestamp-rounding *timestamp_rounding_action*

Specify the rounding mechanism for quota consumption.

Must be one of the following:

- **ceiling**: Round off to the smallest integer greater than the fraction.
- **floor**: Always discard the fraction.
- **roundoff**: If the fractional part is greater than or equal to 0.5, round off to the smallest integer greater than the fraction.

Usage Guidelines Use this command to configure the rounding mechanism for quota consumption.

active-charging service credit-control group usage-reporting quotas-to-report based-on-grant

Configures reporting usage only for granted quota.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Credit Control Group Configuration (config-group-credit_control_group_name)

Syntax Description `usage-reporting quotas-to-report based-on-grant [report-only-granted-volume]`

report-only-granted-volume

Specify to only report granted volume related AVPs.

Usage Guidelines Configures ACS Credit Control Usage Reporting. Use this command to configure reporting usage only for granted quota.

active-charging service group-of-ruledefs

Configures ACS group-of-ruledefs parameters.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Group of Ruledefs Configuration (config-group-of-ruledefs-group_name)

Syntax Description `group-of-ruledefs` *ruledefs_group_name*

Syntax Description `no group-of-ruledefs`

ruledefs_group_name

Specify the group-of-ruledefs name.

Must be a string.

Usage Guidelines

Use this command to create/configure/delete a group-of-ruledefs. A group-of-ruledefs is a collection of ruledefs to use in access policy creation. Maximum of 384 group-of-ruledefs can be created. Changes to the Group of Ruledefs Configuration mode (config-group-of-ruledefs-<group_name>).

You can configure a maximum of 384 elements with this command.

Example

The following command creates a group-of-ruledefs named rulegroup1:

```
group-of-ruledefs rulegroup1
```

active-charging service group-of-ruledefs add-ruledef priority

Configures the priority of ruledefs in the current group-of-ruledefs.

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Group of Ruledefs Configuration (config-group-of-ruledefs-*group_name*)

Syntax Description

add-ruledef priority *ruledef_priority* **ruledef** *ruledef_name*

priority ruledef_priority

Specify the ruledef priority. Priority must be unique within the group-of-ruledefs.

Must be an integer in the range of 1-10000.

ruledef ruledef_name

Specify name of the ruledef to add to the current group-of-ruledefs.

Must be a string.

Usage Guidelines

Use this command to add ruledefs to a group-of-ruledefs, and configure the priority of the ruledef in the current group-of-ruledefs.

You can configure a maximum of 512 elements with this command.

active-charging service p2p-detection attribute ssl-renegotiation

Configures supported attribute of configurable P2P detection attributes populated from the currently loaded P2P plugin.

Command Modes	Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name)
Syntax Description	p2p-detection attribute ssl-renegotiation { id-reduce-factor <i>id_reduce_factor</i> max-entry-per-sessmgr <i>max_entry_per_sessmgr</i> }
Syntax Description	no p2p-detection attribute ssl-renegotiation id-reduce-factor <i>id_reduce_factor</i> Specify by how much factor the SSL ID is stored in the SSL Session ID tracker table. Must be an integer in the range of 0-65535. max-entry-per-sessmgr <i>max_entry_per_sessmgr</i> Specify maximum SSL Session IDs tracked per session manager. Must be an integer in the range of 0-65535.
Usage Guidelines	Configures the detection of SSL renegotiation flows. Use this command to specify the supported attribute of configurable P2P detection attributes populated from the currently loaded P2P plugin.

active-charging service p2p-detection ecs-analysis

Enables or disables ACS analysis.

Command Modes	Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name)
Syntax Description	p2p-detection ecs-analysis <i>analyzer</i>
Syntax Description	no p2p-detection ecs-analysis analyzer Specify the analyzers. Must be one of the following: <ul style="list-style-type: none"> • all: ACS analysis for all analyzers. • ftp: ACS analysis for FTP analyzer. • http: ACS analysis for HTTP analyzer. • https: ACS analysis for HTTPS analyzer. • rtsp: ACS analysis for RTSP analyzer. • sip: ACS analysis for SIP analyzer.
Usage Guidelines	Use this command to enable or disable ACS analysis. This feature is enabled by default if P2P protocols are enabled.

Example

The following command enables ACS analysis for the ftp analyzer:

```
p2p-detection ecs-analysis ftp
```

active-charging service p2p-detection protocol

Enables or disables the detection of all or specified peer-to-peer (P2P) protocols.

Command Modes	Exec > Global Configuration (config) > Active Charging Service Configuration (config-service- <i>active_charging_service_name</i>)
----------------------	---

Syntax Description	p2p-detection protocol <i>p2p_protocol</i>
---------------------------	---

Syntax Description	no p2p-detection protocol
---------------------------	----------------------------------

p2p_protocol

Specify the P2P protocol.

Must be one of the following:

- all
- cisco-jabber
- eros
- fasttrack
- googlemaps
- skype
- teamspeak
- uber
- ufc
- yahoo

Usage Guidelines	Use this command to enable or disable the detection of all or specified P2P protocol.
-------------------------	---

Example

The following command enables detection of all P2P protocols:

```
p2p-detection protocol all
```


active-charging service packet-filter

Configures Active Charging Service Packet Filter parameters.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name)

Syntax Description **packet-filter** *packet_filter_name*

Syntax Description **no packet-filter**

direction *direction*

Specify the direction in which the current packet filter will be applied.

Must be one of the following:

- **bi-directional**: The filter needs to be applied in uplink as well as downlink direction. This is the default value.
- **downlink**: The filter needs to be applied in only downlink direction.
- **uplink**: The filter needs to be applied in only uplink direction.

Default Value: "bi-directional".

packet-filter *packet_filter_name*

Specify the packet filter name.

Must be a string.

priority *priority*

Specify the current packet filter's priority.

Must be an integer in the range of 0-255.

Usage Guidelines Use this command to configure Active Charging Service Packet Filter parameters.

active-charging service packet-filter ip local-port operator

Configures the port number(s) of the local transport protocol.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-active_charging_service_name) > Packet Filter Configuration (config-packet-filter-packet_filter_name)

Syntax Description **ip local-port** *operator port_number*

Syntax Description **ip remote-port** *operator port_number*

operator

Specify how to match.

Must be one of the following:

- =: Equals.

port_number

Specify a TCP or UDP port number to add to the current port map.

Must be an integer in the range of 0-65535.

Usage Guidelines Configures the IP 5-tuple local port(s) for the current packet filter.

active-charging service packet-filter ip local-port range

Configures the port number range.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-*active_charging_service_name*) > Packet Filter Configuration (config-packet-filter-*packet_filter_name*)

Syntax Description `ip local-port range start start_port_number to end_port_number`

Syntax Description `ip remote-port range start start_port_number to end_port_number`

start start_port_number

Specify the first port number for the port number range.

Must be an integer in the range of 0-65535.

to end_port_number

Specify the last port number for the port number range.

Must be an integer in the range of 0-65535.

Usage Guidelines Configures the IP 5-tuple local port range for the current packet filter.

active-charging service packet-filter ip protocol

Configures the IP protocol(s) for the current packet filter.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Packet Filter Configuration (config-service-packet-filter-*packet_filter_name*)

Syntax Description `ip protocol operator protocol_number`

operator

Specify how to match.

Must be one of the following:

- =: Equals.

protocol_number

Specify the protocol number.

Must be an integer in the range of 0-255.

Usage Guidelines

Configures the IP 5-tuple local port(s) for the current packet filter. Use this command to configure the protocol(s) for a packet filter.

Example

The following command configures the protocol assignment number 300:

```
ip protocol = 300
```

active-charging service packet-filter ip remote-address

Configures the IP remote address(es) for the current packet filter.

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration
(config-service-active_charging_service_name) > Packet Filter Configuration
(config-service-packet-filter-packet_filter_name)

Syntax Description

```
ip remote-address operator({ ipv4_address | ipv6_address } | { ipv4_address/mask |  
ipv6_address/mask } }
```

operator

Specify how to match.

Must be one of the following:

- =: Equals.

Usage Guidelines

Configures the IP 5-tuple local port(s) for the current packet filter. Use this command to configure the remote address(es) for a packet filter.

Example

The following command configures the IP remote address as 10.2.3.4/24:

```
ip remote-address = 10.2.3.4/24
```

active-charging service packet-filter ip remote-port operator

Configures the port number(s) of the local transport protocol.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-active_charging_service_name) > Packet Filter Configuration (config-packet-filter-packet_filter_name)

Syntax Description `ip local-port operator port_number`

Syntax Description `ip remote-port operator port_number`

operator

Specify how to match.

Must be one of the following:

- =: Equals.

port_number

Specify a TCP or UDP port number to add to the current port map.

Must be an integer in the range of 0-65535.

Usage Guidelines Configures the IP 5-tuple local port(s) for the current packet filter.

active-charging service packet-filter ip remote-port range

Configures the port number range.

Command Modes Exec > Global Configuration (config) > ACS Configuration (config-service-active_charging_service_name) > Packet Filter Configuration (config-packet-filter-packet_filter_name)

Syntax Description `ip local-port range start start_port_number to end_port_number`

Syntax Description `ip remote-port range start start_port_number to end_port_number`

start start_port_number

Specify the first port number for the port number range.

Must be an integer in the range of 0-65535.

to end_port_number

Specify the last port number for the port number range.

Must be an integer in the range of 0-65535.

Usage Guidelines Configures the IP 5-tuple local port range for the current packet filter.

active-charging service packet-filter ip tos-traffic-class

Configures the type of service/traffic class under charging action in the Packet filter mode.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Packet Filter Configuration (config-service-packet-filter-packet_filter_name)

Syntax Description **tos-traffic-class** *operator traffic_class*

mask operator

Specify how to match.

Must be one of the following:

- =: Equals.

mask_field

Specify the type-of-service or traffic-class mask field.

Must be an integer in the range of 0-255.

operator

Specify how to match.

Must be one of the following:

- =: Equals.

traffic_class

Specify the traffic class value to filter the traffic.

Must be an integer in the range of 0-255.

Usage Guidelines Use this command to configure the type of service/traffic class under charging action in the Packet filter mode.

active-charging service rulebase

Configures Active Charging Service (ACS) rulebase.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name)

Syntax Description **rulebase** *rulebase_name* [**retransmissions-counted** | **transactional-rule-matching**]

Syntax Description **no rulebase** *rulebase_name*

retransmissions-counted{ false | true }

Specify to count retransmissions in all charging modules.

Must be one of the following:

- false
- true

Default Value: true.

rulebase *rulebase_name*

Specify the rulebase name. If the named rulebase does not exist, it is created.

Must be a string.

transactional-rule-matching

Specify to enable or disable transactional rule matching (TRM), which allows the Active Charging Service (ACS) to bypass per-packet rule matching on a transaction once the transaction is fully classified.

Usage Guidelines

Use this command to create, configure, and delete an ACS rulebase. A rulebase is a collection of protocol rules to match a flow and associated actions to be taken for matching flow. The default rulebase is used when a subscriber/APN is not configured with a specific rulebase to use. Changes to the ACS Rulebase Configuration mode (config-rulebase-<rulebase_name>).

Example

The following command creates a rulebase named test:

```
rulebase test
```

active-charging service rulebase action

Configures the action priority for a ruledef / group-of-ruledefs in the current rulebase.

Syntax Description

```
action priority action_priority{ dynamic-only | static-and-dynamic | timedef
timedef_name }
```

Usage Guidelines

Use this command to configure action priorities for ruledefs / group-of-ruledefs in a rulebase. This CLI command can be entered multiple times to specify multiple ruledefs and charging actions. The ruledefs are examined in priority order, until a match is found and the corresponding charging action is applied.

Example

The following command assigns a rule and action with the action priority of 23, a ruledef named test, and a charging action named test1 to the current rulebase:

```
action priority 23 ruledef test charging-action test1
```

active-charging service rulebase action priority

Configures the action priority for a ruledef / group-of-ruledefs in the current rulebase.

Syntax Description `priority` *action_priority*

action_priority

Specify the action priority.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to configure action priority for ruledefs / group-of-ruledefs in a rulebase. This CLI command can be entered multiple times to specify multiple ruledefs and charging actions. The ruledefs are examined in the priority order, until a match is found and the corresponding charging action is applied.

active-charging service rulebase action priority dynamic-only

Enables matching of dynamic rules with static rules for this action priority on a flow.

Syntax Description `dynamic-only`

Usage Guidelines Use this command to enable matching of dynamic rules with static rules for this action priority on a flow.

active-charging service rulebase action priority dynamic-only group-of-ruledefs

Assigns a group-of-ruledefs to the rulebase.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Rulebase Configuration

Syntax Description `action priority` *action_priority* `static-and-dynamic` `group-of-ruledefs` *group_of_ruledefs_name*

group_of_ruledefs_name

Specify the group-of-ruledefs name.

Must be a string.

Usage Guidelines Use this command to assign a group-of-ruledefs to the rulebase.

active-charging service rulebase action priority dynamic-only ruledef

Assigns ruledefs to the rulebase.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Rulebase Configuration

Syntax Description **action priority** *action_priority* **static-and-dynamic ruledef** *ruledef_name* **charging-action** *charging_action_name* **ruledef** *ruledef_name* [**description** *description*] [**monitoring-key** *monitoring_key*]

ruledef_name

Specify the ruledef name.

Must be a string.

Usage Guidelines Use this command to assign ruledefs to the rulebase.

active-charging service rulebase action priority group-of-ruledefs

Assigns a group-of-ruledefs to the rulebase.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Rulebase Configuration

Syntax Description **action priority** *action_priority* **static-and-dynamic group-of-ruledefs** *group_of_ruledefs_name*

group_of_ruledefs_name

Specify the group-of-ruledefs name.

Must be a string.

Usage Guidelines Use this command to assign a group-of-ruledefs to the rulebase.

active-charging service rulebase action priority ruledef

Assigns ruledefs to the rulebase.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Rulebase Configuration

Syntax Description `action priority action_priority static-and-dynamic ruledef ruledef_name charging-action charging_action_name ruledef ruledef_name [description description] [monitoring-key monitoring_key]`

ruledef_name

Specify the ruledef name.

Must be a string.

Usage Guidelines Use this command to assign ruledefs to the rulebase.

active-charging service rulebase action priority static-and-dynamic

The static-and-dynamic option causes the configuration to be defined and enabled, and allows a dynamic protocol to disable or re-enable the configuration.

Syntax Description `static-and-dynamic`

Usage Guidelines static-and-dynamic

active-charging service rulebase action priority static-and-dynamic group-of-ruledefs

Assigns a group-of-ruledefs to the rulebase.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Rulebase Configuration

Syntax Description `action priority action_priority static-and-dynamic group-of-ruledefs group_of_ruledefs_name`

group_of_ruledefs_name

Specify the group-of-ruledefs name.

Must be a string.

Usage Guidelines Use this command to assign a group-of-ruledefs to the rulebase.

active-charging service rulebase action priority static-and-dynamic ruledef

Assigns ruledefs to the rulebase.

Command Modes	Exec > Global Configuration (config) > Active Charging Service Configuration (config-service- <i>active_charging_service_name</i>) > Rulebase Configuration
Syntax Description	<pre>action priority <i>action_priority</i> static-and-dynamic ruledef <i>ruledef_name</i> charging-action <i>charging_action_name</i> ruledef <i>ruledef_name</i> [description <i>description</i>] [monitoring-key <i>monitoring_key</i>] <i>ruledef_name</i></pre> <p>Specify the ruledef name.</p> <p>Must be a string.</p>
Usage Guidelines	Use this command to assign ruledefs to the rulebase.

active-charging service rulebase action priority timedef

Associates a time definition with the ruledef / group-of-ruledefs. Timedefs activate or deactivate ruledefs / groups-of-ruledefs, making them available for rule matching only when they are active.

Syntax Description	<pre>action priority <i>action_priority</i> timedef group-of-ruledefs <i>group_of_ruledefs_name</i> charging-action <i>charging_action_name</i> [description <i>description</i>] [monitoring-key <i>monitoring_key</i>]</pre>
Usage Guidelines	Use this command to associate a specified time definition with the ruledef / group-of-ruledefs. Timedefs activate or deactivate ruledefs / groups-of-ruledefs, making them available for rule matching only when they are active.

active-charging service rulebase action priority timedef group-of-ruledefs

Assigns a group-of-ruledefs to the rulebase.

Command Modes	Exec > Global Configuration (config) > Active Charging Service Configuration (config-service- <i>active_charging_service_name</i>) > Rulebase Configuration
Syntax Description	<pre>action priority <i>action_priority</i> static-and-dynamic group-of-ruledefs <i>group_of_ruledefs_name</i></pre> <p><i>group_of_ruledefs_name</i></p> <p>Specify the group-of-ruledefs name.</p> <p>Must be a string.</p>
Usage Guidelines	Use this command to assign a group-of-ruledefs to the rulebase.

active-charging service rulebase action priority timedef ruledef

Assigns ruledefs to the rulebase.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Rulebase Configuration

Syntax Description **action priority** *action_priority* **static-and-dynamic ruledef** *ruledef_name* **charging-action** *charging_action_name* **ruledef** *ruledef_name* [**description** *description*] [**monitoring-key** *monitoring_key*]

ruledef_name

Specify the ruledef name.

Must be a string.

Usage Guidelines Use this command to assign ruledefs to the rulebase.

active-charging service rulebase bandwidth

Configures bandwidth policy parameters.

Command Modes Exec > Global Configuration

Syntax Description **bandwidth default-policy** *default_firewall_policy_name*

default-policy *default_firewall_policy_name*

Specify the default firewall policy.

Must be a string.

Usage Guidelines Use this command to configure the bandwidth policy parameter for default firewall policy.

active-charging service rulebase billing-records

Configures the type of billing to be performed for subscriber sessions.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Rulebase Configuration

Syntax Description **billing-records**{ **egcdr** | **radius** | **rf** }

egcdr

Generates an enhanced G-CDR (eG-CDR) for GGSN / P-GW-CDR for P-GW, and/or UDR with specified format on the occurrence of an interim trigger condition at the end of a subscriber session, or an SGSN-to-SGSN handoff

radius

Generates postpaid RADIUS accounting records at the start and end of a subscriber session, and on the occurrence of an interim trigger condition. RADIUS accounting records are generated for each content ID.

rf

Enables Rf accounting.

Usage Guidelines

Use this command to generate enhanced G-CDRs (eG-CDRs), P-GW-CDR for P-GW, RADIUS CDRs and/or UDRs for billing records. The format of eG-CDRs for the default GTPP group is controlled by the inspector command in the Context Configuration Mode.

active-charging service rulebase billing-records udr

Generates Usage Data Record (UDR) with specified the format on the occurrence of an interim trigger condition, at the end of a subscriber session, or a handoff.

Command Modes

Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Rulebase Configuration

Syntax Description

billing-records udr udr-format *udr_format_name*

udr_format_name

Specify the UDR format name.

Must be a string.

Usage Guidelines

Use this command to enable Usage Data Record.

Example

The following command sets the billing record to UDR with UDR format named `udr_format1`:

```
billing-records udr udr-format udr_format1
```

active-charging service rulebase cca diameter

Specify the Diameter sub-AVPs to be included in "Requested-Service-Unit" the Diameter group AVP sent with DCCA Credit Control Requests (CCRs).

Syntax Description `cca diameter requested-service-unit sub-avp{ time cc-time duration | units cc-service-specific-units charging_unit | volume{ cc-input-octets bytes | cc-output-octets bytes | cc-total-octets bytes } }`

Usage Guidelines Use this command to include sub-AVPs based on time, volume, and service specific unit in the "Requested-Service-Unit" grouped AVP with CCRs.

Example

The following command sets the time-based sub-AVP with charging duration of 45 seconds in "Requested-Service-Unit" group AVP on DCCA CCRs:

```
cca diameter requested-service-unit sub-avp time cc-time 45
```

active-charging service rulebase cca diameter requested-service-unit

ACS Diameter Credit Control requesting service unit values.

Syntax Description `requested-service-unit`

Usage Guidelines ACS Diameter Credit Control requesting service unit values.

active-charging service rulebase cca diameter requested-service-unit sub-avp

Configures the sub-AVP of the requesting service unit AVP.

Syntax Description `sub-avp`

Usage Guidelines Use this command to configure the sub-AVP of the requesting service unit AVP.

active-charging service rulebase cca diameter requested-service-unit sub-avp time

Configures the ACS Diameter Credit Control requesting service unit - time values.

Syntax Description `time cc-time duration`

cc-time *duration*

Specify requested service unit for charging time duration in seconds in included sub-AVP.

Must be an integer in the range of 1-4000000000.

Usage Guidelines Use this command to configure the ACS Diameter Credit Control requesting service unit - time values.

active-charging service rulebase cca diameter requested-service-unit sub-avp units

Specify requested service unit by service specific units in bytes/packets in included sub-AVP.

Syntax Description `units cc-service-specific-units charging_unit`

charging_unit

Specify the service-specific charging units.

Must be an integer in the range of 1-4000000000.

Usage Guidelines Use this command to configure the ACS Diameter Credit Control requesting service unit - service specific values.

active-charging service rulebase cca diameter requested-service-unit sub-avp volume

Specify the ACS Diameter Credit Control requesting service unit - time values.

Syntax Description `volume`

cc-input-octets bytes

Specify the volume in bytes.

Must be an integer in the range of 1-4000000000.

cc-output-octets bytes

Specify the output charging octets in bytes.

Must be an integer in the range of 1-4000000000.

cc-total-octets bytes

Specify the total charging octets in bytes.

Must be an integer in the range of 1-4000000000.

Usage Guidelines Use this command to configure the ACS Diameter Credit Control requesting service unit - time values.

active-charging service rulebase cca quota holding-time

Configures the value for the Quota Holding Time (QHT). QHT is used with both time- and volume-based quotas.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Rulebase Configuration

Syntax Description **cca quota holding-time** *holding_time* **content-id** *content_id*

content-id *content_id*

Specify the content ID (Rating group AVP) to use for the Quota holding time for the current rulebase. Must be the content ID specified for Credit Control service in ACS.

Must be an integer in the range of 1-2147483647.

holding_time

Specify the holding time.

Must be an integer in the range of 1-4000000000.

Usage Guidelines

Command Description: Configures various time and threshold-based quotas in the Prepaid Credit Control Service (Credit Control Application). Use this command to configure the value for the Quota Holding Time (QHT). QHT is used with both time- and volume-based quotas. After the configured number of seconds has passed without user traffic, the quota is reported back and the charging stops until new traffic starts.

active-charging service rulebase cca quota retry-time

Configures the retry time for the quota request.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Rulebase Configuration

Syntax Description **cca quota retry-time** *retry_time* [**max-retries** *max_retries*]

max-retries *max_retries*

Specify the maximum number of retries allowed for blacklisted categories.

Must be an integer in the range of 1-65535.

retry_time

Specify the retry interval in seconds.

Must be an integer in the range of 0-86400.

Usage Guidelines

Use this command to configure credit control quota retry time.

active-charging service rulebase cca quota time-duration

Configures the algorithm to compute time duration for Prepaid Credit Control Application quotas in the current rulebase.

Syntax Description `cca quota time-duration algorithm{ consumed-time consumed_time [plus-idle] | continuous-time-periods seconds | parking-meter seconds } [content-id content_id]`

algorithm

Specify Credit Control Quota Time Duration Algorithm

Usage Guidelines

Use this command to set the various time charging algorithms/schemes for prepaid credit control charging. If operator chooses parking-meter style charging, then time is billed in seconds chunks.

Example

The following command configures the QCT to consumed-time duration of 400 seconds:

```
cca quota time-duration algorithm consumed-time 400
```

active-charging service rulebase content-filtering category

Configures the Content Filtering Category Policy Identifier for Policy-based Content Filtering support in the current rulebase.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*) > Rulebase Configuration

Syntax Description `content-filtering category policy-id cf_policy_id`

policy-id *cf_policy_id*

Specify the Content Filtering policy ID.

Must be an integer in the range of 1-4294967295.

Usage Guidelines

Use this command to configure the Content Filtering Category Policy ID for Policy-based Content Filtering support in the rulebase.

Example

The following command configures the Content Filtering Category Policy ID 101 in the rulebase:

```
content-filtering category policy-id 101
```


active-charging service rulebase content-filtering flow-any-error

Configures the action to take on Content Filtering packets in the case of ACS error scenarios.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Rulebase Configuration

Syntax Description `content-filtering flow-any-error{ deny | permit }`

deny

Specify the flow-any-error configuration as deny. All the denied packets will be accounted for by the discarded-flow-content-id configuration in the Content Filtering Policy Configuration Mode. This content ID will be used to generate UDRs for packets denied via content filtering.

permit

Specify the flow-any-error configuration as permit.

Usage Guidelines Use this command to allow/discard content filtering packets in case of ACS error scenarios.

Example

The following command allows content filtering packets in case of an ACS error:

```
content-filtering flow-any-error permit
```

active-charging service rulebase content-filtering mode

This command allows you to enable/disable the specified Category-based Content Filtering mode in the current rulebase.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Rulebase Configuration

Syntax Description `content-filtering mode{ category{ static-and-dynamic | static-only } | server-group cf_server_group }`

category{ static-and-dynamic | static-only }

Using Category-based Content Filtering support requires configuration of the require active-charging content-filtering category command in the Global Configuration Mode.

Must be one of the following:

- **static-and-dynamic:** Configures Category-based Content Filtering in Static-and-Dynamic mode, wherein a static rating of the URL is first performed, and only if the static rating fails to find a match, dynamic rating of the content that the server returns is then performed.

- **static-only**: Configures Category-based Content Filtering in static only mode, wherein all URLs are compared against an internal database to categorize the requested content.

server-group *server_group*

Specify the content-filtering server group name.

Must be a string.

Usage Guidelines

Use this command to enable and apply the content filtering mode in the rulebase to manage a content filtering server with an ICAP client system.

Example

The following command enables the content filtering mode for external content filtering server group `cf_server1` in the rulebase:

```
content-filtering mode server-group cf_server
```

active-charging service rulebase credit-control-group

Configures the credit control group to be used for subscribers who use this rulebase.

Syntax Description

```
credit-control-group cc_group_name
```

Syntax Description

```
no credit-control group
```

cc_group_name

Specify the credit control group name.

Must be a string.

Usage Guidelines

Use this command to specify the desired CC group whenever the rulebase is selected during the subscriber session setup. This is an optional CLI configuration, and used only when customized Assume Positive behavior is required for subscribers. This CLI configuration is applicable only during the session setup. Mid-session change in the CC group is not allowed.

Example

The following command configures the association of a credit-control group named `test` for the current rulebase:

```
credit-control-group test
```

active-charging service rulebase dynamic-rule

Configures whether dynamic rules are matched before statically configured rules.

Syntax Description `dynamic-rule order` *dynamic_rule_order*

order *dynamic_rule_order*

Specify dynamic rule order.

Must be one of the following:

- **always-first**: Specify to match all the dynamic rules against the flow prior to any static rule. This is the default value.
- **first-if-tied**: Specify to match rules against the flow based on their priority with the condition that dynamic rules match before a static rule of the same priority. A rule is a combination of a ruledef, charging action, and precedence. Static rules are defined by the "action" CLI command in the ACS Rulebase Configuration Mode, and are applicable to all subscribers that are associated with the rulebase. Dynamic rules are obtained via a dynamic protocol, such as, the Gx-interface for a particular subscriber session.

Usage Guidelines Use this command to configure the order in which rules are selected for matching in between dynamic rules (per subscriber) and static rules (from rulebase).

Example

The following command matches all dynamic rules against the flow prior to any static rule:

```
dynamic-rule order always-first
```

active-charging service rulebase edr transaction-complete

Configures EDR-related parameters.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-active_charging_service_name) > Rulebase Configuration

Syntax Description `edr transaction-complete{ dns | http } [charging-edr charging_edr_format_name | edr-format edr_format_name | reporting-edr reporting_edr_format_name]`

charging-edr *charging_edr_format_name*

Specify to generate charging EDR on transaction completion.

Must be a string.

dns

DNS protocol related configuration

edr-format *edr_format_name*

Specify to generate EDR on transaction completion for DNS or HTTP protocol.

Must be a string.

http

HTTP protocol related configuration

reporting-edr *reporting_edr_format_name*

Specify the reporting EDR format name to generate reporting EDR on transaction completion.

Must be a string.

Usage Guidelines

Configures the generation of an EDR on the completion of a transaction. Use this command to configure the generation of an EDR when certain application transactions (for example, request/response pairs) complete. EDR generation is supported for DNS or HTTP protocol. Note that these EDRs are in addition to those that might be generated due to other conditions, for example, EDR configurations in a charging action.

Example

The following command configures the generation of charging EDRs on the completion of transactions for HTTP protocol specifying the EDR format as test123:

```
edr transaction-complete http charging-edr test123
```

active-charging service rulebase egcdr threshold

Assigns volume or interval values to the interim G-CDRs.

Syntax Description

```
egcdr threshold interval duration
```

interval *duration*

Specify the time interval, in seconds, for closing the eG-CDR/PGW-CDR if the minimum time duration thresholds are satisfied.

Must be an integer in the range of 60-40000000.

Usage Guidelines

Configures the thresholds for generating eG-CDRs for GGSN and PGW-CDRs for P-GW. Use this command to assign the interval values to the interim G-CDRs.

Example

The following command defines an eG-CDR threshold interval of 600 seconds:

```
egcdr threshold interval 600
```

active-charging service rulebase egcdr threshold volume

Configures the uplink/downlink volume octet counts for the generation of the interim eG-CDRs/PGW-CDRs.

Syntax Description

```
egcdr threshold volume{ downlink | total | uplink } bytes
```

downlink bytes

Specify the limit for the number of downlink (from network to subscriber) octets after which the eG-CDR/PGW-CDR is closed.

Must be an integer in the range of 100000-4000000000.

total bytes

Specify the limit for the total number of octets (uplink+downlink) after which the eG-CDR/PGW-CDR is closed.

Must be an integer in the range of 100000-4000000000.

uplink bytes

Specify the limit for the number of uplink (from subscriber to network) octets after which the eG-CDR/PGW-CDR is closed.

Must be an integer in the range of 100000-4000000000.

Usage Guidelines

Configures the thresholds for generating eG-CDRs for GGSN and PGW-CDRs for P-GW. Use this command to configure the uplink/downlink volume octet counts for the generation of the interim GCDRs.

active-charging service rulebase flow

Configures the charge for the control traffic associated with an application.

Syntax Description

```
flow control-handshaking{ charge-to-application{ [ all-packets ] [
initial-packets ] [ mid-session-packets ] [ tear-down-packets ] } |
charge-separate-from-application }
```

Usage Guidelines

Use this command to configure how to charge for the control traffic associated with an application ruledef. Applications like HTTP use TCP to set up and tear down connections before the HTTP application starts. This command controls whether the packets that set up and tear down the connections should use the same content ID as the application's flow. In normal mode 3-way handshake TCP packets (SYN, SYN-ACK, and ACK) and closing or intermittent packets (FIN, RST, etc.) directed and charged based on configured matched rules. This command makes the system to wait for the start and stop of layer 7 packet flow and content ID and charge the initial, intermittent, and closing TCP packets as configured to the same matching rules and content ID as of the flow. This command also affects applications that do not use TCP but use other methods for control packets, for example WAP, where WTP/UDP may be used to set up and tear down connection-oriented WSP.

Example

The following command enables charging all mid-session ACKs as well as tear-down packets to application:

```
flow control-handshaking charge-to-application mid-session-packets tear-down-packets
```

active-charging service rulebase flow control-handshaking

Specify control protocol handshake packets.

Syntax Description `flow control-handshaking charge-separate-from-application`

charge-separate-from-application

Specify the charging action to separate the charging of the initial control packets or all subsequent control packets from regular charging.

Usage Guidelines Use this command to specify control protocol handshake packets.

active-charging service rulebase flow control-handshaking charge-to-application

Configures the charging action to include the flow control packets either during initial handshaking only or specified control packets during session for charging.

Syntax Description `flow control-handshaking charge-to-application{ [all-packets] [initial-packets] [mid-session-packets] [tear-down-packets] }`

all-packets

Specify that the initial setup packets will wait until the application has been determined before assigning the content-id, and all mid-session ACK packets as well as the final tear-down packets will use that content-id.

initial-packets

Specify that only the initial setup packets will wait for content-id assignment.

mid-session-packets

Specify that the ACK packets after the initial setup will use the application's or content-id assignment.

tear-down-packets

Specify that the final tear-down packets (TCP or WAP) will use the application's or content-id assignment.

Usage Guidelines Use this command to charge control packets to application ruledefs.

active-charging service rulebase flow end-condition

Configures the end condition of the session flows related to a user session and triggers EDR generation.

Syntax Description `flow end-condition{ normal-end-signaling | session-end | timeout | charging-edr charging_edr_format_name }`

charging-edr *charging_edr_format_name*

Specify the charging EDR format name.

Must be a string.

normal-end-signaling

Creates an EDR with the specified EDR format whenever flow end is signaled normally, for example like detecting FIN and ACK for a TCP flow, or a WSP-DISCONNECT terminating a connection-oriented WSP flow over UDP) and create an EDR for the flow using the specified EDR format.

session-end

Creates an EDR with the specified EDR format whenever a subscriber session ends. By this option ACS creates an EDR with the specified format name for every flow that has had any activity since last EDR was created for the flow on session end.

timeout

Creates an EDR with the specified EDR format whenever a flow ends due to a timeout condition.

Usage Guidelines

Use this command to enable or disable the capturing of EDRs based on flow end condition.

Example

The following command configures the flow end condition as handoff and creates a charging EDR with format named `edr_format1`:

```
flow end-condition handoff charging-edr edr_format1
```

active-charging-service-rulebase-flow-limit-across-applications

This command allows you to limit the total number of simultaneous flows per Subscriber/APN sent to a rulebase regardless of the flow type, or limit flows based on the protocol type under the Session Control feature.

Syntax Description

```
flow limit-across-applications { limit | non-tcp limit | tcp limit }
```

non-tcp *limit*

Specify the maximum limit of non-TCP type flows.

Must be an integer in the range of 1-4000000000.

tcp *limit*

Specify the maximum limit of TCP flows.

Must be an integer in the range of 1-4000000000.

Usage Guidelines

Use this command to limit the total number of flows allowed per subscriber for a rulebase regardless of flow type, or limit flows based on the protocol non-TCP (connection-less) or TCP (connection-oriented).

Example

The following command configures the maximum number of 200000 flows for the rulebase:

```
flow limit-across-applications 200000
```

active-charging service rulebase ip

Configures IP parameters related to user session.

Command Modes

Exec > Global Configuration

Syntax Description

```
ip reassembly-timeout reassembly_timeout
```

reassembly-timeout *reassembly_timeout*

Specify the maximum duration for which ip packet fragments are retained, in milliseconds.

Must be an integer in the range of 100-30000.

Default Value: 5000.

Usage Guidelines

Use this command to configure IP parameters related to user session.

active-charging service rulebase p2p

Configures enabling/disabling the P2P analyzer to detect peer-to-peer (P2P) applications.

Syntax Description

```
p2p dynamic-flow-detection
```

dynamic-flow-detection

Enables dynamic-flow detection, allowing the P2P analyzer to detect the P2P applications configured for the ACS.

Usage Guidelines

Use this command to enable/disable the P2P analyzer to detect peer-to-peer (P2P) applications.

active-charging service rulebase post-processing

Configures the post-processing action to be taken.

Syntax Description

```
post-processing priority priority{ group-of-ruledefs ruledefs_group_name |  
ruledef ruledef_name } charging-action charging_action_name [ description description  
]
```

Usage Guidelines

Use this command to configure the post-processing priority and action to be taken on a ruledef in the rulebase.

active-charging service rulebase post-processing priority

Configures the post-processing priority and action to be taken on specific ruledef in the current rulebase.

Syntax Description `post-processing priority priority_value{ group-of-ruledefs ruledefs_group_name | ruledef ruledef_name } charging-action charging_action_name [description description]`

priority_value

Specify the priority value.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to configure the post-processing priority and action to be taken on a ruledef in the rulebase.

Example

The following command configures the ruledef named `test_ruledef` with a priority of 10, and the charging action named `test_ca` for post processing:

```
post-processing priority 10 ruledef test_ruledef charging-action test_ca
```

active-charging service rulebase post-processing priority group-of-ruledefs

Configures group-of-ruledef parameters.

Syntax Description `group-of-ruledefs ruledefs_group_name`

charging-action *charging_action_name*

Specify the charging action.

Must be a string.

description *description*

Specify an optional description for this configuration.

Must be a string.

ruledefs_group_name

Specify the group-of-ruledefs to add/configure/delete.

Must be a string.

Usage Guidelines Use this command to configure group-of-ruledef parameters.

active-charging service rulebase post-processing priority ruledef

Assigns ruledefs to a rulebase.

Syntax Description **ruledef** *ruledef_name*

Syntax Description **no ruledef**

charging-action *charging_action_name*

Specify the charging action name.

Must be a string.

description *description*

Specify an optional description for this configuration.

Must be a string.

ruledef_name

Specify the ruledef name.

Must be a string.

Usage Guidelines Use this command to assign ruledefs to a rulebase.";

active-charging service rulebase route

Configures the routing of packets to protocol analyzers.

Syntax Description **route priority** *route_priority* **ruledef** *ruledef_name* **analyzer**{ **dns** | **file-transfer** | **ftp-control** | **ftp-data** | **h323** | **http** | **imap** | **mipv6** | **mms** | **pop3** | **pptp** | **radius** | **rtcp** | **rtp** | **rtsp** | **sdp** | **secure-http** | **sip** | **smtp** | **tftp** | **wsp-connection-less** | **wsp-connection-oriented** } [**description** *description*]

Usage Guidelines Instances of this CLI command control which packets are routed to which protocol analyzers. Packets sent to ACS are always passed through the IP protocol analyzer. This CLI command controls which higher layer analyzers are also invoked.

Example

The following command assigns a route and rule action with the route priority of 23, a ruledef named test, and an analyzer test_analyzer with description as route_test1 to the current rulebase:

```
route priority 23 ruledef test analyzer test_analyzer description route_test1
```

active-charging service rulebase route priority

Configures the priority of the route in the rulebase.

Syntax Description `priority route_priority`

route_priority

Specify the route priority.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the priority of the route in the rulebase.

active-charging service rulebase route priority ruledef

Configures the ruledef to evaluate packets to determine analyzer.

Syntax Description `ruledef ruledef_name`

analyzer analyzer

Specify the analyzer for the ruledef.

Must be one of the following:

- **dns**: Configure the primary and secondary IPv4 or IPv6 address of the DNS servers.
- **file-transfer**: Allows you to enter descriptive text for this configuration.
- **ftp-control**: Charge volume for FTP-Control.
- **ftp-data**: Charge volume for FTP-Data.
- **h323**: Enables/disables H323 NAT ALG.
- **http**: Specify to detect HTTP protocol.
- **imap**: Route to IMAP protocol analyzer.
- **mipv6**: Route to MIPv6 protocol analyzer.
- **mms**: Route to MMS protocol analyzer.
- **pop3**: Route to POP3 protocol analyzer.
- **pptp**: Route to PPTP protocol analyzer.
- **radius**: Route to RADIUS protocol analyzer.
- **rtcp**: Route to RTCP protocol analyzer.
- **rtp**: Route to RTP protocol analyzer.
- **rtsp**: Route to RTSP protocol analyzer.

- **sdp**: Route to SDP protocol analyzer.
- **secure-http**: Route to secure HTTP protocol analyzer.
- **sip**: Route to SIP protocol analyzer.
- **smtp**: Route to SMTP protocol analyzer.
- **tftp**: Route to TFTP protocol analyzer.
- **wsp-connection-less**: Route to WSP connection-less protocol analyzer.
- **wsp-connection-oriented**: Route to WSP connection-oriented protocol analyzer.

description *description*

Enables to add a description to the rule and action for later reference in saved configuration file.

Must be a string.

ruledef_name

Specify the ruledef name.

Must be a string.

Usage Guidelines Use this command to assign a ruledef to a rulebase,

active-charging service rulebase rtp

This command allows you to enable/disable the Real Time Streaming Protocol (RTSP) and Session Description Protocol (SDP) analyzers to detect the start/stop of RTP and RTCP flows.

Syntax Description `rtp dynamic-flow-detection`

dynamic-flow-detection

Controls whether dynamic RTP/RTCP flow detection is enabled or not.

Usage Guidelines Use this command to enable the RTSP and SDP analyzer to detect the start/stop of RTP and RTCP flows. This command is used in conjunction with the route priority command.

Example

```
rtp dynamic-flow-detection
```

active-charging service rulebase tcp

Configures TCP window size checking.

Syntax Description `tcp check-window-size`

check-window-size

Enables/Disables TCP window-size check.

Usage Guidelines

Use this command to enable or disable TCP window-size check for packets out of TCP window.

Example

The following command enables TCP window-size check:

```
tcp check-window-size
```

active-charging service rulebase tcp mss

Configures the TCP Maximum Segment Size (MSS) in TCP SYN packets.

Syntax Description

```
tcp mss mss_value{ [ add-if-not-present ] [ limit-if-present ] }
```

add-if-not-present

Specify to add the TCP MSS if not present in the packet.

limit-if-present

Specify to limit the TCP MSS if present in the packet.

mss_value

Specify the TCP MSS.

Must be an integer in the range of 496-65535.

Usage Guidelines

Using this command, TCP MSS can be limited if already present in the TCP SYN packets. If there are no errors detected in IP header/TCP mandatory header and there are no memory allocation failures, TCP optional header is parsed. If TCP MSS is present in the optional header and its value is greater than the configured MSS value, the value present in the TCP packet is replaced with the configured one.

Example

The following command limits the TCP maximum segment size to 3000, and if not present adds it to the packets:

```
tcp mss 3000 limit-if-present add-if-not-present
```

active-charging service rulebase tcp packets-out-of-order

Configures processing of TCP packets that are out of order, while waiting for the earlier packet(s) to arrive.

Syntax Description

```
tcp packets-out-of-order timeout timeout_duration
```

timeout *timeout_duration*

Specify the timeout duration for re-assembly of TCP out-of-order packets in milliseconds.

Must be an integer in the range of 100-30000.

Default Value: 5000.

Usage Guidelines

Use this command to configure how to process TCP packets that are out of order, while waiting for the earlier packet(s) to arrive.

Example

The following command sets the timeout timer to 10000 milliseconds:

```
tcp packets-out-of-order timeout 10000
```

active-charging service rulebase tcp packets-out-of-order transmit

Configures the TCP out-of-order segment behavior after buffering a copy.

Syntax Description

transmit *transmit_behavior*

transmit *transmit_behavior*

Specify the TCP out-of-order segment behavior after buffering a copy.

Must be one of the following:

- **after-reordering**: Delivers the TCP out-of-order segments in-sequence to the ACS analyzer after all packets are received and successfully reordered. The 'after-reordering' feature is doing this by buffering out-of-order packets, and only releasing them after the missing out-of-order packets are received (or after OOO timeout). When the missing packet is received, complete deep packet inspection of all the packets and all relevant in-line services is done, and then the last packet is forwarded (as the latest). If reordering is not successful within the specified OOO timeout, all the subsequent received packets in that TCP flow are forwarded without being passed through the analysers (except the L3/L4 analyzer). As a consequence, only L3/L4 rule matching will take place. If memory allocation fails or the received packet is partial retransmitted data, the packet will also be forwarded immediately without being passed through the protocol analyzers, except for the L3/L4 analyzers.
- **immediately**: Delivers the TCP out-of-order segments in-sequence to the ACS analyzer after all packets are received and successfully reordered. The 'immediately' feature is accomplishing this by making a copy of out-of-order packets, and buffering those, while transmitting the original data packets through the outgoing interface immediately. When the missing packet is received, complete deep packet inspection of all the packets and all relevant in-line services is done, and then the last packet is forwarded. If reordering of the buffered packets is not successful within the specified OOO timeout, all the subsequent received packets in that TCP flow are forwarded without being passed through the analysers (except the L3/L4 analyzer). As a consequence only L3/L4 rule matching will take place. If memory allocation fails or the received packet is partial retransmitted data, the packet will also be forwarded immediately without being passed through the protocol analyzers, except for the L3/L4 analyzers.

Usage Guidelines Use this command to configure the TCP out-of-order segment behavior after buffering a copy.

active-charging service rulebase tethering-detection

Enables or disables the Tethering Detection feature for the current rulebase, and specifies the database to use.

Syntax Description `tethering-detection [application | dns-based | ip-ttl value tli_value | max-syn-packet-in-flow max_syn_packets | tether-db database]`

application

Specify to perform tethering detection based on App-based method.

dns-based

Specify to perform tethering detection based on DNS-based method.

max-syn-packet-in-flow *max_syn_packets*

Specify the number of SYN packets applicable for tethering detection in a flow.

Must be an integer in the range of 1-3.

tether-db *database*

Specify to perform tethering detection using the specified database.

Must be one of the following:

- **os-db-only**: Specify to perform tethering detection using IPv4 and IPv6 OS signature databases.
- **os-ua-db**: Specify to perform tethering detection using IPv4 OS, IPv6 OS, and UA signature databases.
- **ua-db-only**: Specify to perform tethering detection using only the UA signature database.

tli_value

Specify TTL values for tethered flows.

Must be an integer in the range of 1-255.

Usage Guidelines Use this command to enable/disable the Tethering Detection feature for a rulebase, and configures the database to use. Tethering Detection can be done for IPv4, IPv6, TCP and UDP flows.

Example

The following command enables the Tethering Detection feature in the rulebase, and specifies to use only the OS database:

```
tethering-detection os-db-only
```

active-charging service rulebase url-blacklisting

This command allows you to enable/disable URL Blacklisting functionality for the current rulebase, and configures the action to be taken when there is a URL match.

Syntax Description `url-blacklisting action{ discard | redirect-url url | terminate-flow | www-reply-code-and-terminate-flow reply_code } [content-id content_id]`

Usage Guidelines Use this command to enable/disable URL Blacklisting at the rulebase level, and configure the action to be taken.

Example

The following command enables URL Blacklisting in the rulebase, and configures the terminate-flow action with reply code 300:

```
url-blacklisting action www-reply-code-and-terminate-flow 300
```

active-charging service rulebase url-blacklisting action

Configures URL Blacklisting action.

Syntax Description `action{ content-id content_id | discard | redirect-url redirect_url | terminate-flow | www-reply-code-and-terminate-flow reply_code }`

content-id *content_id*

Specify the content ID, a number assigned to URL Blacklisting.

Must be an integer in the range of 1-65535.

discard

Specify the URL Blacklisting action as "discard".

redirect-url *redirect_url*

Specify the redirect URL/URI, which must be a fully qualified URL/URI.

Must be a string.

terminate-flow

Specify the URL Blacklisting action as "terminate-flow".

www-reply-code-and-terminate-flow *reply_code*

Specify the URL Blacklisting action as "terminate-flow action with reply code".

Must be an integer in the range of 400-599.

Usage Guidelines Use this command to configure the URL Blacklisting action.

active-charging-service-rulebase-url-blacklisting-match-method

Configures URL Blacklisting match-method.

Syntax Description `match-method` *match_method*

match_method

Specify the match method.

Must be one of the following:

- **exact**: URL Blacklisting performs an exact match of URL.
- **generic**: URL Blacklisting performs generic match of URL.

Usage Guidelines Use this command to configure the URL Blacklisting match method.

active-charging service ruledef

Configures ACS rule definitions (ruledef).

Syntax Description `ruledef` *ruledef_name* [**rule-application** *ruledef_purpose*]

rule-application *ruledef_purpose*

Specify the purpose of the ruledef, such as for charging, post-processing, routing, and so on. When a ruledef is evaluated, if the multi-line-or all-lines command is configured, the logical OR.

Must be one of the following:

- **charging**: Specify that the current ruledef is for charging purposes.
- **post-processing**: Specify that the current ruledef is for post-processing purposes. This enables processing of packets even if the rule matching for them has been disabled.
- **routing**: Specify that the current ruledef is for routing purposes. Up to 256 ruledefs can be defined for routing in an Active Charging Service.

ruledef_name

Specify the ruledef name. If the named ruledef does not exist, it is created, and the CLI mode changes to the ACS Ruledef Configuration Mode wherein the ruledef can be configured. If the named ruledef already exists, the CLI mode changes to the ACS Ruledef Configuration Mode for that ruledef.

Must be a string.

Usage Guidelines Use this command to create/configure/delete an ACS ruledef. A ruledef represents a set of matching conditions across multiple L3 L7 protocol based on protocol fields and state information. Each ruledef can be used across multiple rulebases within the active charging service.

Example

The following command creates/configures an ACS ruledef named test1:

```
ruledef test1
```

active-charging service ruledef bearer

Configures rule expression to match Radio Access Technology (RAT) in the bearer flow.

Syntax Description `bearer service-3gpp rat-type operator rat_type`

Usage Guidelines Use this command to define rule expressions to match a RAT type.

Example

The following command defines a rule expression to match user traffic based on RAT type "wlan":

```
bearer service-3gpp rat-type = wlan
```

active-charging service ruledef bearer service-3gpp rat-type

Specify RAT type associated with the bearer flow.

Syntax Description `bearer service-3gpp rat-type operator rat_type`

operator

Specify how to match.

Must be one of the following:

- `!=`: Does not equal.
- `=`: Equals.

rat_type

Specify the RAT type.

Must be one of the following:

- **geran**: GSM EDGE Radio Access Network type.
- **utran**: UMTS Terrestrial Radio Access Network type.
- **wlan**: Wireless LAN type.

Usage Guidelines Use this command to configure the RAT type associated with the bearer flow.

active-charging service ruledef dns

Configures rule expression to match answer name in the answer section of DNS response messages.";

Syntax Description `dns answer-name [case-sensitive] operator value`

Usage Guidelines Use this command to define rule expressions to match an answer name from the answer section of DNS response messages.

Example

The following command defines a rule expression to match user traffic for answer name test:

```
dns answer-name = test
```

active-charging service ruledef dns answer-name

Specify DNS answer name.

Syntax Description `answer-name`

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **!contains**: Does not contains.
- **!ends-with**: Does not end with.
- **!starts-with**: Does not start with.
- **=**: Equals.
- **case-sensitive**: Strings will be matched in case-sensitive manner.
- **contains**: Contains.
- **ends-with**: Ends with.
- **starts-with**: Starts with.

value

Specify the value.

Must be a string.

Usage Guidelines Use this command to configure the DNS answer name. This depends upon the query type.

active-charging service ruledef dns any-match

Configures any-match.

Syntax Description `wsp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **!=**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to configure any match.

active-charging service ruledef dns previous-state

Configures rule expression to match previous state of the DNS FSM.

Syntax Description `dns previous-state operator previous_state`

operator

Specify how to match.

Must be one of the following:

- **!=**: Does not equal.
- **=**: Equals.

previous_state

Specify the previous state to match.

Must be one of the following:

- **dns-timeout**: DNS timeout.
- **init**: Init.

- **req-sent**: Request sent.
- **resp-error**: Response error.
- **resp-success**: Response success..

Usage Guidelines

Use this command to define rule expressions to match previous state of DNS FSM.

Example

The following command defines a rule expression to match the DNS FSM previous state "req-sent":

```
dns previous-state = req-sent
```

active-charging service ruledef dns query-name

Configures rule expression to match query name in DNS request messages.

Syntax Description

```
dns query-name [ case-sensitive ] operator query_name
```

operator

Specify how to match.

Must be one of the following:

- **!=**: Does not equal.
- **!contains**: Does not contain.
- **!ends-with**: Does not end with.
- **!starts-with**: Does not start with.
- **=**: Equals.
- **case-sensitive**: Strings will be matched in case-sensitive manner.
- **contains**: Contains.
- **ends-with**: Ends with.
- **starts-with**: Starts with.

query_name

Specify the query name to match.

Must be a string.

Usage Guidelines

Use this command to define rule expressions to match query name in DNS request messages.

Example

The following command defines a rule expression to match DNS query name "test":

```
dns query-name = test
```

active-charging service ruledef dns query-type

Configures rule expression to match the query type in the DNS request messages.

Syntax Description **dns query-type** *operator query_type*

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

query_type

Specify the previous state to match.

Must be one of the following:

- **a**: Support query-type 'A'.
- **aaaa**: Support query-type 'AAAA'.
- **cname**: Support query-type 'CNAME'.
- **ns**: Support query-type 'NS'.
- **null**: Support query-type 'NULL'.
- **ptr**: Support query-type 'PTR'.
- **srv**: Support query-type 'SRV'.
- **txt**: Support query-type 'TXT'.

Usage Guidelines

Use this command to define rule expressions to match the query type in the DNS request messages.

Example

The following command defines a rule expression to match the DNS query type "txt":

```
dns query-type = txt
```

active-charging service ruledef dns return-code

Configures rule expression to match response code in DNS response messages.

Syntax Description `dns return-code operator return_code`

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

return_code

Specify the response code to match.

Must be one of the following:

- **format-error**: DNS response: Format Error.
- **name-error**: DNS response: Name Error.
- **no-error**: DNS response: No Error.
- **not-implemented**: DNS response: Name server does not support the requested query.
- **refused**: DNS response: Refused to perform specified operation.
- **server-failure**: DNS response: Server Failure.

Usage Guidelines Use this command to define rule expressions to match response code in DNS response messages.

Example

The following command defines a rule expression to match a DNS response code "refused":

```
dns return-code = refused
```

active-charging service ruledef dns state

Configures rule expressions to match current state of DNS FSM.

Syntax Description `dns state operator current_state`

current_state

Specify the state to match.

Must be one of the following:

- **dns-timeout**
- **init**
- **req-sent**
- **resp-error**
- **resp-success**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines

Use this command to define rule expressions to match DNS FSM current state.

Example

The following command defines a rule expression to match DNS FSM current state of "req-sent":

```
dns state = req-sent
```

active-charging service ruledef dns tid

Configures rule expressions to match Transaction Identifier (TID) field in DNS messages.

Syntax Description

```
dns tid operator tid_value
```

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **< =**: Lesser than or equals.
- **=**: Equals.
- **> =**: Greater than or equals.

value

Specify the query name to match.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to define rule expressions to match a TID field of DNS messages.

Example

The following command defines a rule expression to match DNS TID field value of "test":

```
dns tid = test
```

active-charging service ruledef http

Configures rule expression to match the User-Agent request-header field of HTTP packets.

Syntax Description `http user-agent [case-sensitive] operator user_agent`

Usage Guidelines Use this command to define rule expressions to match value in HTTP user-agent header field.

Example

The following command defines a rule expression to match "xyz.123" in HTTP user-agent header field:

```
http user-agent = xyz.123
```

active-charging service ruledef http content

Configures rule expression to match value in HTTP Content-Type entity-header field.

Syntax Description `http content type [case-sensitive] operator content_type`

Usage Guidelines Use this command to define rule expressions to match value in HTTP Content-Type entity-header field.

Example

```
http content type = abc100
```

active-charging service ruledef http content type

Specify HTTP Content-Type.

Syntax Description `type operator content_type`

case-sensitive

Specify that the rule expression be case-sensitive. By default, rule expressions are not case-sensitive.

content_type

Specify the content type to match.

Must be a string.

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **!contains**: Does not contain.
- **!ends-with**: Does not end with.
- **!starts-with**: Does not start with.
- **=**: Equals.
- **contains**: Contains.
- **ends-with**: Ends with.
- **starts-with**: Starts with.

Usage Guidelines

Use this command to configure rule expressions to match HTTP content type.

active-charging service ruledef http host

Configures rule expression to match value in HTTP Host Request header field.

Syntax Description

```
http host [ case-sensitive ] operator host_name
```

case-sensitive

Specify that the rule expression be case-sensitive. By default, rule expressions are not case-sensitive.

host-string host_name

Specify the host name to match.

Must be a string.

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **!contains**: Does not contain.
- **!ends-with**: Does not end with.

- **!starts-with**: Does not start with.
- **=**: Equals.
- **contains**: Contains.
- **ends-with**: Ends with.
- **regex**: Regular expression.
- **starts-with**: Starts with.

Usage Guidelines

Use this command to define rule expressions to match value in HTTP Host request-header field.

Example

The following command defines a rule expression to match "host1" in HTTP Host request-header field:

```
http host = host1
```

active-charging service ruledef http referer

Configures rule expression to match the value in the HTTP Referer request-header field.

Syntax Description

```
http referer [ case-sensitive ] operator referer_name
```

case-sensitive

Specify that the rule expression be case-sensitive. By default, rule expressions are not case-sensitive.

operator

Specify how to match.

Must be one of the following:

- **!$=$**: Does not equal.
- **!contains**: Does not contain.
- **!ends-with**: Does not end with.
- **!present**: Not present.
- **!starts-with**: Does not start with.
- **=**: Equals.
- **contains**: Contains.
- **ends-with**: Ends with.
- **regex**: Regular expression.
- **starts-with**: Starts with.

referer_name

Specify the HTTP referer name to match.

Must be a string.

Usage Guidelines

Use this command to define rule expressions to match value in HTTP Referer request-header field. This feature allows an operator to collect or track all URLs visited during a particular subscriber session. These URLs include the entire string of visited URLs, including all referral links. This information is output in an Event Data Record (EDR) format to support reporting or billing functions.

Example

The following command defines a rule expression to match the HTTP referer "cricket.espn.com":

```
http referer = cricket.espn.com
```

active-charging service ruledef http url

Configures rule expression to match HTTP URL.

Syntax Description

```
http url [ case-sensitive ] operator url
```

operator

Specify how to match.

Must be one of the following:

- **!=**: Does not equal.
- **!contains**: Does not contain.
- **!ends-with**: Does not end with.
- **!present**: Does not present.
- **!starts-with**: Does not start with.
- **=**: Equals.
- **case-sensitive**: Is case sensitive.
- **contains**: Contains.
- **ends-with**: Ends with.
- **regex**: Regular expression.
- **starts-with**: Starts with.

url

Specify the HTTP URL to match.

Must be a string.

Usage Guidelines Use this command to define rule expressions to match HTTP URL.

active-charging service ruledef http user-agent

Rule expressions to match the User-Agent.

Syntax Description `user-agent operator user_agent`

case-sensitive

Specify that the rule expression be case-sensitive. By default, rule expressions are not case-sensitive.

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **!contains**: Does not contain.
- **!ends-with**: Does not end with.
- **!present**: Not present.
- **!starts-with**: Does not start with.
- **=**: Equal.
- **contains**: Contains.
- **ends-with**: Ends with.
- **present**: Present.
- **regex**: Regular expression.
- **starts-with**: Starts with.

user_agent

Specify the HTTP user agent value to match.

Must be a string.

Usage Guidelines Use this command to configure rule expressions to match user agent.

active-charging service ruledef icmpv6 any-match

Configures any-match.

Syntax Description `wsp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- FALSE
- TRUE

operator

Specify how to match.

Must be one of the following:

- !=: Does not equal.
- =: Equals.

Usage Guidelines

Use this command to configure any match.

active-charging service ruledef ip

This command allows you to define rule expressions to match the IP address of the destination end of the connection.

Syntax Description

ip server-ip-address { *ipv4_address* | *ipv6_address* }

Usage Guidelines

Use this command to define rule expressions to match the IP address of the destination end of the connection.

Example

The following command defines a rule expression to match user traffic based on IPv4 server address 10.1.1.1:

```
ip server-ip-address = 10.1.1.1
```

active-charging service ruledef ip any-match

Configures rule expressions to match all IPv4/IPv6 packets.

Syntax Description

ip any-match *operator condition*

condition

Specify the condition.

Must be one of the following:

- FALSE

- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines

Use this command to define rule expressions to match IPv4/IPv6 packets.

Example

The following command defines a rule expression to match IPv4/IPv6 packets:

```
ip any-match = TRUE
```

active-charging service ruledef ip dst-address

Configures rule expressions to match IP destination address field within IP headers.

Syntax Description

```
ip dst-address { ipv4_address | ipv6_address }
```

address-group *ipv6_address*

Specify a group of IPv6 addresses configured with wildcard input and/or specialized range input. Multiple wildcard characters can be accepted as input and only one 2 byte range input will be accepted. Both wildcard character input and 2 byte range input can be configured together within an IPv6 address.

Must be a string.

dst-address { *ipv4_address* | *ipv6_address* }

Specify the destination IP address.

Must be one of the following:

- **dst-address**: DST address.

host-pool *host_pool_name*

Specify the host pool name.

Must be a string.

ip-address-prefix *prefix*

Specify the IP address prefix.

operator

Specify how to match.

Must be one of the following:

- **!range**: Not in the range.
- **!='**: Does not equal.
- **<=**: Lesser than or equal to.
- **=**: Equals.
- **>=**: Greater than or equal to.
- **range**: In the range.

Usage Guidelines

Use this command to define rule expressions to match the IP destination address field within IP headers.

Example

The following command defines a rule expression to match user traffic based on the IPv4 destination address 10.1.1.1:

```
ip dst-address = 10.1.1.1
```

active-charging service ruledef ip protocol

Configures rule expression to match based on protocol being transported by IP packet.

Syntax Description

```
ip protocol operator protocol
```

operator

Specify how to match.

Must be one of the following:

- **!='**: Does not equal.
- **<=**: Lesser than or equal to.
- **=**: Equals.
- **>=**: Greater than or equal to.

protocol

Specify the protocol.

Must be an integer in the range of 0-255.

-Or-

Must be one of the following:

- **ah**
- **esp**
- **gre**
- **icmp**
- **icmpv6**
- **tcp**
- **udp**

Usage Guidelines Use this command to define rule expressions to match based on protocol being transported by IP packet.

active-charging service ruledef ip server-ip-addr

Specify the server's IP address.

Syntax Description

server-ip-address

Keyword/Variable Syntax: { <ipv4_address> | <ipv6_address> }

Specify the server IP address.

Must be one of the following:

- **server-ip-address**: server-ip-address.

address-group ipv6_address

Specify a group of IPv6 addresses configured with wildcard input and/or specialized range input. Multiple wildcard characters can be accepted as input and only one 2 byte range input will be accepted. Both wildcard character input and 2 byte range input can be configured together within an IPv6 address.

Must be a string.

host-pool host_pool_name

Specify the host pool name.

Must be a string.

ip-address-prefix prefix

Specify the IP address prefix.

operator

Specify how to match.

Must be one of the following:

- **!range**: Not in the range.

- **!='**: Does not equal.
- **<=**: Lesser than or equal to.
- **=**: Equals.
- **>=**: Greater than or equal to.
- **range**: In the range.

Usage Guidelines Use this command to configure the server IP address.

active-charging service ruledef ip uplink

Configures rule expression to match IP uplink packets.

Command Modes Exec > Global Configuration

Syntax Description **uplink** *operator condition*

condition

Specify the condition to match.

Must be one of the following:

- **FALSE**: Not analyzed.
- **TRUE**: Analyzed.

operator

Specify how to match.

Must be one of the following:

- **!='**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to configure matching IP uplink packets based on condition.

active-charging service ruledef ip version

Configures rule expression to match based on IP version.

Command Modes Exec > Global Configuration

Syntax Description **version** *operator ip_version*

ip_version

Specify the condition to match.

Must be one of the following:

- **ipv4**
- **ipv6**

operator

Specify how to match.

Must be one of the following:

- **=**: Equals.

Usage Guidelines Use this command to configure rule expression to match based on the IP version.

active-charging service ruledef multi-line-or

This command applies the OR operator to all lines in the current ruledef.

Syntax Description **multi-line-or all-lines**

all-lines

Applies the OR operator to all lines in the current ruledef.

Usage Guidelines When a ruledef is evaluated, if the multi-line-or all-lines command is configured, the logical OR operator is applied to all the rule expressions in the ruledef to decide if the ruledef matches or not. If the multi-line-or all-lines command is not configured, the logical AND operator is applied to all the rule expressions.

active-charging service ruledef p2p

This command allows you to define rule expressions to match P2P protocol. This command must be used for charging purposes. It must not be used for detection purposes.

Syntax Description **p2p protocol operator protocol**

p2p set-app-proto app_protocol_name

Specify the custom-defined protocol (CDP) name. CDP name specifies the name of the custom defined protocol (CDP) for TLS/SSL flows, QUIC flows or any app-identifier matching the ruledef. If the flow/packet matches the rule, the CDP name specified in the ruledef will be taken and the flow will be marked as CDP. If no CDP is configured in the rule, then the flow will be treated as TLS/SSL or QUIC flow.

Must be a string.

Usage Guidelines

Use this command to define rule expressions to detect P2P protocols for charging purposes. For detection purposes use the "p2p-detection protocol" command in the ACS Configuration Mode.

Example

The following command specifies to detect "skype" protocol for charging purposes:

```
p2p protocol = skype
```

active-charging service ruledef p2p app-identifier

Configures application identifiers populated from the plugin and mark the matching flows to a custom-defined protocol (CDP) name.

Syntax Description

```
p2p app-identifier app-type app_type operator string
```

app-type *app_type*

Specify the app type.

Must be one of the following:

- **quic-sni**: Specify the QUIC Server Name Indication (SNI) field value.
- **tls-cname**: Specify the common name in the Server Hello message of TLS. SSL renegotiation is supported for the flows that are marked using "tls-cname" rules.
- **tls-sni**: Specify the TLS/SSL Server Name Indication (SNI) field.

operator

Specify how to match.

Must be one of the following:

- **!=**: Not equals.
- **=**: Equals.
- **contains**: Contains.
- **ends-with**: Ends with.
- **starts-with**: Starts with.

string

Specify the string.

Must be a string.

Usage Guidelines

Use this command to configure application identifiers populated from the plugin and mark the matching flows to a custom-defined protocol (CDP) name. The SNI ruledef supports multi-line-or all-lines or default multi-line-and rule lines. The rule lines configured with "!=" operator will not be optimized.

Example

The following command configures the QUIC SNI app-identifier that is set to fb.com:

```
p2p app-identifier quic-sni = fb.com
```

active-charging service ruledef p2p protocol

Configures the protocol to match.

Syntax Description `protocol operator protocol`

operator

Specify how to match.

Must be one of the following:

- =: Equals.

protocol

Specify the P2P protocol.

Must be one of the following:

- **8tracks**: P2P detection protocol for "8tracks" application.
- **actionvoip**: P2P detection protocol for "actionvoip" application.
- **actsync**: P2P detection protocol for "actsync" application.
- **adobeconnect**: P2P detection protocol for "adobeconnect" application.
- **aimini**: P2P detection protocol for "aimini" application.
- **amazoncloud**: P2P detection protocol for "amazoncloud" application.
- **amazonmusic**: P2P detection protocol for "amazonmusic" application.
- **amazonvideo**: P2P detection protocol for "amazonvideo" application.
- **antsp2p**: P2P detection protocol for "antsp2p" application.
- **apple-push**: P2P detection protocol for "apple-push" application.
- **apple-store**: P2P detection protocol for "apple-store" application.
- **applejuice**: P2P detection protocol for "applejuice" application.
- **applemaps**: P2P detection protocol for "applemaps" application.
- **ares**: P2P detection protocol for "ares" application.
- **armagettron**: P2P detection protocol for "armagettron" application.
- **avi**: P2P detection protocol for "avi" application.

- **badoo**: P2P detection protocol for "badoo" application.
- **baidumovie**: P2P detection protocol for "baidumovie" application.
- **battlefld**: P2P detection protocol for "battlefld" application.
- **bbm**: P2P detection protocol for "bbm" application.
- **beatport**: P2P detection protocol for "beatport" application.
- **bitcasa**: P2P detection protocol for "bitcasa" application.
- **bittorrent-sync**: P2P detection protocol for "bittorrent-sync" application.
- **bittorrent**: P2P detection protocol for "bittorrent" application.
- **blackberry-store**: P2P detection protocol for "blackberry-store" application.
- **blackberry**: P2P detection protocol for "blackberry" application.
- **blackdialer**: P2P detection protocol for "blackdialer" application.
- **box**: P2P detection protocol for "box" application.
- **callofduty**: P2P detection protocol for "callofduty" application.
- **chikka**: P2P detection protocol for "chikka" application.
- **cisco-jabber**: P2P detection protocol for "cisco-jabber" application.
- **citrix**: P2P detection protocol for "citrix" application.
- **clubbox**: P2P detection protocol for "clubbox" application.
- **clubpenguin**: P2P detection protocol for "clubpenguin" application.
- **comodounite**: P2P detection protocol for "comodounite" application.
- **crackle**: P2P detection protocol for "crackle" application.
- **crossfire**: P2P detection protocol for "crossfire" application.
- **curiosity-stream**: P2P detection protocol for "curiosity-stream" application.
- **cyberghost**: P2P detection protocol for "cyberghost" application.
- **ddlink**: P2P detection protocol for "ddlink" application.
- **didi**: P2P detection protocol for "didi" application.
- **directconnect**: P2P detection protocol for "directconnect" application.
- **dish-anywhere**: P2P detection protocol for "dish-anywhere" application.
- **dns-tunneling**: P2P detection protocol for "dns-tunneling" application.
- **dofus**: P2P detection protocol for "dofus" application.
- **dropbox**: P2P detection protocol for "dropbox" application.
- **ebuddy**: P2P detection protocol for "ebuddy" application.
- **edonkey**: P2P detection protocol for "edonkey" application.

- **espn**: P2P detection protocol for "espn" application.
- **facebook**: P2P detection protocol for "facebook" application.
- **facetime**: P2P detection protocol for "facetime" application.
- **fandor**: P2P detection protocol for "fandor" application.
- **fasttrack**: P2P detection protocol for "fasttrack" application.
- **feidian**: P2P detection protocol for "feidian" application.
- **ficall**: P2P detection protocol for "ficall" application.
- **fiesta**: P2P detection protocol for "fiesta" application.
- **filetopia**: P2P detection protocol for "filetopia" application.
- **flash**: P2P detection protocol for "flash" application.
- **flickr**: P2P detection protocol for "flickr" application.
- **florensia**: P2P detection protocol for "florensia" application.
- **foursquare**: P2P detection protocol for "foursquare" application.
- **fox-sports**: P2P detection protocol for "fox-sports" application.
- **freenet**: P2P detection protocol for "freenet" application.
- **friendster**: P2P detection protocol for "friendster" application.
- **fring**: P2P detection protocol for "fring" application.
- **fubotv**: P2P detection protocol for "fubotv" application.
- **funshion**: P2P detection protocol for "funshion" application.
- **gadugadu**: P2P detection protocol for "gadugadu" application.
- **gamekit**: P2P detection protocol for "gamekit" application.
- **gmail**: P2P detection protocol for "gmail" application.
- **gnutella**: P2P detection protocol for "gnutella" application.
- **go90**: P2P detection protocol for "go90" application.
- **goober**: P2P detection protocol for "goober" application.
- **google-music**: P2P detection protocol for "google-music" application.
- **google-push**: P2P detection protocol for "google-push" application.
- **google**: P2P detection protocol for "google" application.
- **googleplay**: P2P detection protocol for "googleplay" application.
- **googleplus**: P2P detection protocol for "googleplus" application.
- **gotomeeting**: P2P detection protocol for "gotomeeting" application.
- **gtalk**: P2P detection protocol for "gtalk" application.

- **guildwars**: P2P detection protocol for "guildwars" application.
- **halflife2**: P2P detection protocol for "halflife2" application.
- **hamachivpn**: P2P detection protocol for "hamachivpn" application.
- **hbogo**: P2P detection protocol for "hbogo" application.
- **hbonow**: P2P detection protocol for "hbonow" application.
- **heytell**: P2P detection protocol for "heytell" application.
- **hgtv**: P2P detection protocol for "hgtv" application.
- **hike-messenger**: P2P detection protocol for "hike-messenger" application.
- **hls**: P2P detection protocol for "hls" application.
- **hotspotvpn**: P2P detection protocol for "hotspotvpn" application.
- **http**: P2P detection protocol for "http" application.
- **hulu**: P2P detection protocol for "hulu" application.
- **hyves**: P2P detection protocol for "hyves" application.
- **iax**: P2P detection protocol for "iax" application.
- **icall**: P2P detection protocol for "icall" application.
- **icecast**: P2P detection protocol for "icecast" application.
- **icloud**: P2P detection protocol for "icloud" application.
- **idrive**: P2P detection protocol for "idrive" application.
- **igo**: P2P detection protocol for "igo" application.
- **iheartradio**: P2P detection protocol for "iheartradio" application.
- **imesh**: P2P detection protocol for "imesh" application.
- **imessage**: P2P detection protocol for "imessage" application.
- **imgur**: P2P detection protocol for "imgur" application.
- **imo**: P2P detection protocol for "imo" application.
- **implus**: P2P detection protocol for "implus" application.
- **instagram**: P2P detection protocol for "instagram" application.
- **oplayer**: P2P detection protocol for "oplayer" application.
- **iptv**: P2P detection protocol for "iptv" application.
- **irc**: P2P detection protocol for "irc" application.
- **isakmp**: P2P detection protocol for "isakmp" application.
- **iskoot**: P2P detection protocol for "iskoot" application.
- **itunes**: P2P detection protocol for "itunes" application.

- **jabber**: P2P detection protocol for "jabber" application.
- **jap**: P2P detection protocol for "jap" application.
- **jumblo**: P2P detection protocol for "" application.jumblo
- **kakaotalk**: P2P detection protocol for "kakaotalk" application.
- **kidoodle**: P2P detection protocol for "kidoodle" application.
- **kik-messenger**: P2P detection protocol for "kik-messenger" application.
- **kontiki**: P2P detection protocol for "kontiki" application.
- **kugou**: P2P detection protocol for "kugou" application.
- **kuro**: P2P detection protocol for "kuro" application.
- **linkedin**: P2P detection protocol for "linkedin" application.
- **lync**: P2P detection protocol for "lync" application.
- **magicjack**: P2P detection protocol for "magicjack" application.
- **manolito**: P2P detection protocol for "manolito" application.
- **mapfactor**: P2P detection protocol for "mapfactor" application.
- **mapi**: P2P detection protocol for "mapi" application.
- **maplestory**: P2P detection protocol for "maplestory" application.
- **meebo**: P2P detection protocol for "meebo" application.
- **mega**: P2P detection protocol for "mega" application.
- **mgcp**: P2P detection protocol for "mgcp" application.
- **mig33**: P2P detection protocol for "mig33" application.
- **mlb**: P2P detection protocol for "mlb" application.
- **mojo**: P2P detection protocol for "mojo" application.
- **monkey3**: P2P detection protocol for "monkey3" application.
- **mozy**: P2P detection protocol for "mozy" application.
- **msn**: P2P detection protocol for "msn" application.
- **msrp**: P2P detection protocol for "msrp" application.
- **mute**: P2P detection protocol for "mute" application.
- **mypeople**: P2P detection protocol for "mypeople" application.
- **myspace**: P2P detection protocol for "myspace" application.
- **nateontalk**: P2P detection protocol for "" application.nateontalk
- **naverline**: P2P detection protocol for "naverline" application.
- **navigon**: P2P detection protocol for "navigon" application.

- **nbc-sports**: P2P detection protocol for "nbc-sports" application.
- **netflix**: P2P detection protocol for "netflix" application.
- **netmotion**: P2P detection protocol for "netmotion" application.
- **newsy**: P2P detection protocol for "newsy" application.
- **nimbuzz**: P2P detection protocol for "nimbuzz" application.
- **nokia-store**: P2P detection protocol for "nokia-store" application.
- **octoshape**: P2P detection protocol for "octoshape" application.
- **odnoklassniki**: P2P detection protocol for "odnoklassniki" application.
- **off**: P2P detection protocol for "off" application.
- **ogg**: P2P detection protocol for "ogg" application.
- **oist**: P2P detection protocol for "oist" application.
- **oovoo**: P2P detection protocol for "oovoo" application.
- **opendrive**: P2P detection protocol for "opendrive" application.
- **openft**: P2P detection protocol for "openft" application.
- **openvpn**: P2P detection protocol for "openvpn" application.
- **operamini**: P2P detection protocol for "operamini" application.
- **orb**: P2P detection protocol for "orb" application.
- **oscar**: P2P detection protocol for "oscar" application.
- **outlook**: P2P detection protocol for "outlook" application.
- **paltalk**: P2P detection protocol for "paltalk" application.
- **pando**: P2P detection protocol for "pando" application.
- **pandora**: P2P detection protocol for "pandora" application.
- **path**: P2P detection protocol for "path" application.
- **pcanywhere**: P2P detection protocol for "pcanywhere" application.
- **periscope**: P2P detection protocol for "periscope" application.
- **pinterest**: P2P detection protocol for "pinterest" application.
- **plingm**: P2P detection protocol for "plingm" application.
- **poco**: P2P detection protocol for "poco" application.
- **popo**: P2P detection protocol for "popo" application.
- **pplive**: P2P detection protocol for "pplive" application.
- **ppstream**: P2P detection protocol for "ppstream" application.
- **ps3**: P2P detection protocol for "ps3" application.

- **qq**: P2P detection protocol for "qq" application.
- **qqgame**: P2P detection protocol for "qqgame" application.
- **qqlive**: P2P detection protocol for "qqlive" application.
- **quake**: P2P detection protocol for "quake" application.
- **quic**: P2P detection protocol for "quic" application.
- **quicktime**: P2P detection protocol for "quicktime" application.
- **radio-paradise**: P2P detection protocol for "radio-paradise" application.
- **rdp**: P2P detection protocol for "rdp" application.
- **rdt**: P2P detection protocol for "rdt" application.
- **regram**: P2P detection protocol for "regram" application.
- **rfactor**: P2P detection protocol for "rfactor" application.
- **rhapsody**: P2P detection protocol for "rhapsody" application.
- **rmstream**: P2P detection protocol for "rmstream" application.
- **rodi**: P2P detection protocol for "rodi" application.
- **rynga**: P2P detection protocol for "rynga" application.
- **samsung-store**: P2P detection protocol for "samsung-store" application.
- **scydo**: P2P detection protocol for "scydo" application.
- **secondlife**: P2P detection protocol for "secondlife" application.
- **shoutcast**: P2P detection protocol for "shoutcast" application.
- **showtime**: P2P detection protocol for "showtime" application.
- **silverlight**: P2P detection protocol for "silverlight" application.
- **siri**: P2P detection protocol for "siri" application.
- **skinny**: P2P detection protocol for "skinny" application.
- **skydrive**: P2P detection protocol for "skydrive" application.
- **skype**: P2P detection protocol for "Skype" application.
- **slacker-radio**: P2P detection protocol for "slacker-radio" application.
- **slingbox**: P2P detection protocol for "slingbox" application.
- **slingtv**: P2P detection protocol for "slingtv" application.
- **smartvoip**: P2P detection protocol for "smartvoip" application.
- **snapchat**: P2P detection protocol for "snapchat" application.
- **softether**: P2P detection protocol for "softether" application.
- **sopcast**: P2P detection protocol for "sopcast" application.

- **soribada**: P2P detection protocol for "soribada" application.
- **soulseek**: P2P detection protocol for "soulseek" application.
- **soundcloud**: P2P detection protocol for "soundcloud" application.
- **spdy**: P2P detection protocol for "spdy" application.
- **speedtest**: P2P detection protocol for "speedtest" application.
- **splashfighter**: P2P detection protocol for "splashfighter" application.
- **spotify**: P2P detection protocol for "spotify" application.
- **ssdp**: P2P detection protocol for "ssdp" application.
- **ssl**: P2P detection protocol for "ssl" application.
- **starz**: P2P detection protocol for "starz" application.
- **stealthnet**: P2P detection protocol for "stealthnet" application.
- **steam**: P2P detection protocol for "steam" application.
- **stun**: P2P detection protocol for "stun" application.
- **sudaphone**: P2P detection protocol for "sudaphone" application.
- **svtplay**: P2P detection protocol for "svtplay" application.
- **tagged**: P2P detection protocol for "tagged" application.
- **talkatone**: P2P detection protocol for "talkatone" application.
- **tango**: P2P detection protocol for "tango" application.
- **teamspeak**: P2P detection protocol for "teamspeak" application.
- **teamviewer**: P2P detection protocol for "teamviewer" application.
- **telegram**: P2P detection protocol for "telegram" application.
- **thunder**: P2P detection protocol for "thunder" application.
- **thunderhs**: P2P detection protocol for "thunderhs" application.
- **tmo-tv**: P2P detection protocol for "tmo-tv" application.
- **tor**: P2P detection protocol for "tor" application.
- **truecaller**: P2P detection protocol for "truecaller" application.
- **truphone**: P2P detection protocol for "truphone" application.
- **tumblr**: P2P detection protocol for "tumblr" application.
- **tunein-radio**: P2P detection protocol for "tunein-radio" application.
- **tunnelvoice**: P2P detection protocol for "tunnelvoice" application.
- **tvants**: P2P detection protocol for "tvants" application.
- **tvuplayer**: P2P detection protocol for "tvuplayer" application.

- **twitch**: P2P detection protocol for "twitch" application.
- **twitter**: P2P detection protocol for "twitter" application.
- **ultrabac**: P2P detection protocol for "ultrabac" application.
- **ultrasurf**: P2P detection protocol for "ultrasurf" application.
- **univision**: P2P detection protocol for "univision" application.
- **upc-phone**: P2P detection protocol for "upc-phone" application.
- **usenet**: P2P detection protocol for "usenet" application.
- **ustream**: P2P detection protocol for "ustream" application.
- **uusee**: P2P detection protocol for "uusee" application.
- **vchat**: P2P detection protocol for "vchat" application.
- **veoh tv**: P2P detection protocol for "veoh tv" application.
- **vessel**: P2P detection protocol for "vessel" application.
- **vevo**: P2P detection protocol for "vevo" application.
- **viber**: P2P detection protocol for "viber" application.
- **vine**: P2P detection protocol for "vine" application.
- **voipdiscount**: P2P detection protocol for "voipdiscount" application.
- **vopium**: P2P detection protocol for "vopium" application.
- **voxer**: P2P detection protocol for "voxer" application.
- **vpn x**: P2P detection protocol for "vpn x" application.
- **vtok**: P2P detection protocol for "vtok" application.
- **vtun**: P2P detection protocol for "vtun" application.
- **vudu**: P2P detection protocol for "vudu" application.
- **warcft3**: P2P detection protocol for "warcft3" application.
- **waze**: P2P detection protocol for "waze" application.
- **webex**: P2P detection protocol for "webex" application.
- **wechat**: P2P detection protocol for "wechat" application.
- **weibo**: P2P detection protocol for "weibo" application.
- **whatsapp**: P2P detection protocol for "whatsapp" application.
- **wii**: P2P detection protocol for "wii" application.
- **windows-azure**: P2P detection protocol for "windows-azure" application.
- **windows-store**: P2P detection protocol for "windows-store" application.
- **winmx**: P2P detection protocol for "winmx" application.

- **winny**: P2P detection protocol for "winny" application.
- **wmstream**: P2P detection protocol for "wmstream" application.
- **wofkungfu**: P2P detection protocol for "wofkungfu" application.
- **wofwarcraft**: P2P detection protocol for "wofwarcraft" application.
- **wuala**: P2P detection protocol for "wuala" application.
- **wwe**: P2P detection protocol for "wwe" application.
- **xbox**: P2P detection protocol for "xbox" application.
- **xdcc**: P2P detection protocol for "xdcc" application.
- **xing**: P2P detection protocol for "xing" application.
- **yahoo**: P2P detection protocol for "yahoo" application.
- **yahoomail**: P2P detection protocol for "yahoomail" application.
- **youku**: P2P detection protocol for "youku" application.
- **yourfreetunnel**: P2P detection protocol for "yourfreetunnel" application.
- **youtube**: P2P detection protocol for "youtube" application.
- **zattoo**: P2P detection protocol for "zattoo" application.

Usage Guidelines

Use this command to specify the protocol to match.

active-charging service ruledef p2p traffic-type

Configures rule expression to match the traffic type.

Syntax Description `p2p traffic-type operator traffic_type`

operator

Specify how to match.

Must be one of the following:

- **!=**: Does not equal.
- **=**: Equals.

traffic_type

Specify the traffic type to match.

Must be one of the following:

- **ads**
- **audio**

- **file-transfer**
- **im**
- **streaming-audio**
- **streaming-video**
- **tunnel**
- **unclassified**
- **video**
- **voipout**

Usage Guidelines

Use this command to configure the system to detect voice or non-voice P2P traffic. When the detection of a protocol is enabled then the detection of sub-type is enabled by default.

Example

The following command configures the system to detect video traffic:

```
p2p traffic-type = video
```

active-charging service ruledef rtp

Configures rule expression to match all Real-time Transport Protocol (RTP) packets.

Syntax Description

rtp any-match *operator condition*

Usage Guidelines

Use this command to define rule expressions to match all RTP packets.

Example

The following command defines a rule expression to match all RTP packets:

```
rtp any-match = TRUE
```

active-charging service ruledef rtp any-match

Configures any-match.

Syntax Description

wsp any-match *operator condition*

condition

Specify the condition.

Must be one of the following:

- FALSE
- TRUE

operator

Specify how to match.

Must be one of the following:

- !=: Does not equal.
- =: Equals.

Usage Guidelines Use this command to configure any match.

active-charging service ruledef rtsp

Configures rule expression to match all Real Time Streaming Protocol (RTSP) packets.

Syntax Description `rtsp any-match operator condition`

Usage Guidelines Use this command to define rule expressions to match all RTSP packets.

Example

The following command defines a rule expression to match all RTSP packets:

```
rtsp any-match = TRUE
```

active-charging service ruledef rtsp any-match

Configures any-match.

Syntax Description `wsp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- FALSE
- TRUE

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to configure any match.

active-charging service ruledef secure-http

Configures rule expression to match uplink (subscriber to network) HTTPS packets.

Syntax Description `secure-http uplink operator condition`

Usage Guidelines Use this command to define rule expressions to match uplink HTTPS packets.

Example

The following command defines a rule expression to match all uplink HTTPS packets:

```
secure-http uplink = TRUE
```

active-charging service ruledef secure-http any-match

Configures any-match.

Syntax Description `wsp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to configure any match.

active-charging service ruledef secure-http uplink

Specify HTTPS uplink packet.

Syntax Description `uplink`

condition

Specify the condition to match.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **!=**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to specify the HTTPS uplink packets.

active-charging service ruledef tcp

Configures rule expression to match bit within the flag field of TCP headers.

Syntax Description `tcp flag operator flag`

Usage Guidelines Use this command to configure the rule expression to match bit within the flag field of TCP headers.

Example

The following command defines a rule expression to match "reset" within flag field of TCP headers:

```
tcp flag = reset
```

active-charging service ruledef tcp any-match

Configures any-match.

Syntax Description `wsp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **!=:** Does not equal.
- **=:** Equals.

Usage Guidelines

Use this command to configure any match.

active-charging service ruledef tcp either-port with-portMap-range

With port map range.

Syntax Description

with-portMap-range *operator* **port-map** *port_map_name*

port-map *port_map_name*

Specify the port map name.

Must be a string.

operator

Specify how to match.

Must be one of the following:

- **!range:** Not in the range of.
- **range:** In the range of.

Usage Guidelines

Use this command to configure with port map range.

active-charging service ruledef tcp either-port with-range

Configures operator start to-node end.

Syntax Description `with-range operator start start_range to-node end end_range`

end end_range

Specify the end range.

Must be an integer in the range of 1-65535.

start start_range

Specify the start range.

Must be an integer in the range of 1-65535.

to-node

Specify the to node.

Must be one of the following:

- to

operator

Specify how to match.

Must be one of the following:

- !range: Not in the range of.
- range: In the range of.

Usage Guidelines Use this command to configure operator start to-node end.

active-charging service ruledef tcp either-port without-range

Configures without range.

Syntax Description `without-range operator port port_range`

port port_range

Specify the port range.

Must be an integer in the range of 1-65535.

operator

Specify how to match.

Must be one of the following:

- !=: Does not equal.
- <=: Lesser than or equal to.

- =: Equals.
- >=: Greater than or equal to.

Usage Guidelines Use this command to configure without range.

active-charging service ruledef tcp flag

Flag field of TCP headers.

Syntax Description `flag operator flag`

flag

Specify the flag to match.

Must be one of the following:

- **ack**
- **fin**
- **push**
- **reset**
- **sync**

operator

Specify how to match.

Must be one of the following:

- !=: Does not equal.
- !contains: Does not contain.
- =: Equals.
- contains: Contains.

Usage Guidelines Use this command to configure the Flag field of TCP headers.

active-charging service ruledef tcp state

Configures rule expression to match current state of TCP connections.

Syntax Description `tcp state operator current_state`

current_state

Specify the state to match.

Must be one of the following:

- **close-wait**
- **close**
- **closing**
- **established**
- **fin-wait1**
- **fin-wait2**
- **last-ack**
- **listen**
- **syn-received**
- **syn-sent**
- **time-wait**

operator

Specify how to match.

Must be one of the following:

- **!='**: Does not equal.
- **=**: Equals.

Usage Guidelines

Use this command to define rule expressions to match a current state of TCP connections.

Example

The following command defines a rule expression to match user traffic based on current state "close":

```
tcp state = close
```

active-charging service ruledef tethering-detection

Configures rule expression to match tethered or non-tethered flows.

Syntax Description

```
tethering-detection [ application | dns-based | ip-ttl | os-ua ] {
tether-flow }
```

flow-opt

Specify the flow option.

Must be one of the following:

- **flow-not-tethered**: If tethering is not detected on flow.

- **flow-tethered**: If tethering is detected on flow.

Usage Guidelines

Use this command to define rule expressions to match tethered/non-tethered flows. Note that in order for the rule containing the tethering-detection configuration to get matched, at least one valid rule line has to be present in it.

Example

The following command defines a rule expression to match tethered flows:

```
tethering-detection flow-tethered
```

active-charging service ruledef tethering-detection application

Configures application-based tethering detection.

Syntax Description

application

flow-opt

Specify the flow option.

Must be one of the following:

- **flow-not-tethered**: If tethering is not detected on flow.
- **flow-tethered**: If tethering is detected on flow.

Usage Guidelines

Use this command to select flows that were tethered or non-tethered based on application-based detection solution.

active-charging service ruledef tethering-detection dns-based

Configures DNS query pattern based tethering detection.

Syntax Description

dns-based

flow-opt

Specify the flow option.

Must be one of the following:

- **flow-not-tethered**: If tethering is not detected on flow.
- **flow-tethered**: If tethering is detected on flow.

Usage Guidelines

Use this command to select flows that were tethered or non-tethered based on DNS-based detection solution.

active-charging service ruledef tethering-detection ip-ttl

Configures IP-TTL based tethering detection.

Syntax Description `ip-ttl`

flow-opt

Specify the flow option.

Must be one of the following:

- **flow-not-tethered**: If tethering is not detected on flow.
- **flow-tethered**: If tethering is detected on flow.

Usage Guidelines Use this command to select flows that were tethered or non-tethered as per IP-TTL values.

active-charging service ruledef tethering-detection os-ua

Configures OS-UA based tethering detection.

Syntax Description `os-ua`

flow-opt

Specify the flow option.

Must be one of the following:

- **flow-not-tethered**: If tethering is not detected on flow.
- **flow-tethered**: If tethering is detected on flow.

Usage Guidelines Use this command to select flows that were tethered or non-tethered as per OS-UA lookups.

active-charging service ruledef udp

Configures rule expression to match all UDP packets.

Syntax Description `udp any-match operator condition`

Usage Guidelines Use this command to define rule expressions to match all UDP packets.

Example

The following command defines a rule expression to match all UDP packets:

```
udp any-match = TRUE
```


active-charging service ruledef udp any-match

Configures any-match.

Syntax Description `wsp any-match operator condition`

condition

Specify the condition.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to configure any match.

active-charging service ruledef udp either-port with-portMap-range

With port map range.

Syntax Description `with-portMap-range operator port-map port_map_name`

port-map port_map_name

Specify the port map name.

Must be a string.

operator

Specify how to match.

Must be one of the following:

- **!range**: Not in the range of.
- **range**: In the range of.

Usage Guidelines Use this command to configure with port map range.

active-charging service ruledef udp either-port with-range

Configures operator start to-node end.

Syntax Description `with-range operator start start_range to-node end end_range`

end end_range

Specify the end range.

Must be an integer in the range of 1-65535.

start start_range

Specify the start range.

Must be an integer in the range of 1-65535.

to-node

Specify the to node.

Must be one of the following:

- to

operator

Specify how to match.

Must be one of the following:

- **!range**: Not in the range of.
- **range**: In the range of.

Usage Guidelines Use this command to configure operator start to-node end.

active-charging service ruledef udp either-port without-range

Configures without range.

Syntax Description `without-range operator port port_range`

port port_range

Specify the port range.

Must be an integer in the range of 1-65535.

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **< =**: Lesser than or equal to.
- **=**: Equals.
- **> =**: Greater than or equal to.

Usage Guidelines

Use this command to configure without range.

active-charging service ruledef wsp any-match

Configures any-match.

Syntax Description

wsp any-match *operator condition*

condition

Specify the condition.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines

Use this command to configure any match.

active-charging service ruledef wtp any-match

Configures any-match.

Syntax Description

wsp any-match *operator condition*

condition

Specify the condition.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines Use this command to configure any match.

active-charging service ruledef www

Configures rule expression to match URL for any Web protocol analyzer HTTP, WAP1.X, WAP2.0.

Syntax Description **www url [case-sensitive] operator url**

Usage Guidelines Use this command to define rule expressions to match the URL for any Web protocol analyzer HTTP, WAP1.X, WAP2.0.

Example

The following command defines a rule expression to match user traffic based on WWW URL "www.abc.com":

```
www url = www.abc.com
```

active-charging service ruledef www any-match

Configures rule expression to match all WWW packets. It is true for HTTP, WAP1.x, and WAP2.0 protocols.

Syntax Description **www any-match operator condition**

condition

Specify the condition to match.

Must be one of the following:

- **FALSE**
- **TRUE**

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **=**: Equals.

Usage Guidelines

Use this command to define rule expressions to match all WWW packets. This expression is true for HTTP, WAP1.x, and WAP2.0 protocols

Example

The following command defines a rule expression to match all WWW packets:

```
www any-match = TRUE
```

active-charging service ruledef www host

Configures rule expression to match the "host name" header field present in HTTP/WSP headers.

Syntax Description

```
www host [ case-sensitive ] operator host_name
```

case-sensitive

Specify that the rule expression be case-sensitive. By default, rule expressions are not case-sensitive.

host_name

Specify the WWW host name to match.

Must be a string.

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **!contains**: Does not contain.
- **!ends-with**: Does not end with.
- **!starts-with**: Does not start with.
- **=**: Equals.
- **contains**: Contains.
- **ends-with**: Ends with.
- **regex**: Regular expression.

- **starts-with**: Starts with.

Usage Guidelines

Use this command to define rule expressions to match the host name header field present in HTTP/WSP headers.

Example

The following command defines a rule expression to match user traffic based on WWW host name "host1":

```
www host = host1
```

active-charging service ruledef www url

Configures rule expressions to match URL.

Syntax Description

www url [**case-sensitive**] *operator url*

case-sensitive

Specify that the rule expression be case-sensitive. By default, rule expressions are not case-sensitive.

operator

Specify how to match.

Must be one of the following:

- **! =**: Does not equal.
- **!contains**: Does not contain.
- **!ends-with**: Does not end with.
- **!starts-with**: Does not start with.
- **=**: Equals.
- **contains**: Contains.
- **ends-with**: Ends with.
- **regex**: Regular expression.
- **starts-with**: Starts with.

url

Specify the URL to match.

Must be a string.

Usage Guidelines

Use this command to configure the rule expressions to match URLs.

active-charging service url-blacklisting

Enables URL Blacklisting functionality.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*)

Syntax Description **url-blacklisting match-method** *match_method*

Syntax Description **no url-blacklisting match-method**

match-method *match_method*

Specify the match method to look up for URLs in the URL Blacklisting database.

Must be one of the following:

- **exact**: URL Blacklisting is performed only on exact match with a URL present in the URL.
- **generic**: URL Blacklisting is performed on a generic match with URLs present in the URL Blacklisting database.

Default Value: exact.

Usage Guidelines Use this command to enable URL Blacklisting functionality.

active-charging service urr-list

Configures ACS URR list configuration.

Command Modes Exec > Global Configuration (config) > Active Charging Service Configuration (config-service-*active_charging_service_name*)

Syntax Description **urr-list** *urr_list_name*

Syntax Description **no urr-list**

urr_list_name

Specify the URR list name.

Must be a string.

Usage Guidelines Use this command to configure the ACS URR list configuration. Enters ACS URR List Configuration mode. This mode allows mapping of URR-ID with Rating Group and Service-ID

You can configure a maximum of one element with this command.

active-charging service urr-list urr-list-data

Configures URR list data.

Syntax Description

urr-list-data

rating group *group_number*

Specify the rating ID used in prepaid charging.

Must be an integer in the range of 0-2147483647.

urr-id *urr_id_range*

Specify the URR identifier for rating/service group.

Must be an integer in the range of 1-8388607.

Usage Guidelines

Use this command to configure the URR list data.

active-charging service urr-list urr-list-data service-identifier

Configures the service identifier.

Syntax Description

service-identifier *service_id*

urr-id *urr_id_range*

Specify the URR identifier for rating/service group.

Must be an integer in the range of 1-8388607.

service_id

Specify the service ID.

Must be an integer in the range of 0-2147483647.

Usage Guidelines

Use this command to configure the service identifier.

apn

Configures Access Point Name (APN) templates.

Command Modes

Exec > Global Configuration (config)

Syntax Description

apn *apn_name*

apn_name

Specify the APN name.

Must be a string.

Usage Guidelines

Use this command to create and configure an APN.

Example

The following command creates an APN template named ispl:

```
apn ispl
```

apn active-charging

Enables a configured ACS rulebase.

Command Modes

Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description

active-charging rulebase *rulebase_name*

rulebase *rulebase_name*

Specify the rulebase name.

Must be a string.

Usage Guidelines

Use this command to enable a configured ACS rulebase.

apn authorize-with-hss

Configures s6b authentication.

Command Modes

Exec > Global Configuration

Syntax Description

authorize-with-hss [**report-ipv6-addr**]

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards s6b interface.

Usage Guidelines

Use this command to configure s6b authentication. Enables IPv6 reporting through AAR towards s6b interface.

apn authorize-with-hss egtp

Enables s6b authorization for all the interfaces of EGTP along with GN-GP Handover except 3G initial attach.

Command Modes

Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `authorize-with-hss egtp [report-ipv6-addr]`

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards s6b interface.

Usage Guidelines Use this command to enable s6b authorization for all the interfaces of EGTP along with GN-GP Handover except 3G initial attach.

apn authorize-with-hss egtp gn-gp-enabled

Enables s6b authorization for 3G initial attach and GNGP handover.

Syntax Description `gn-gp-enabled report-ipv6-addr`

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards s6b interface.

Usage Guidelines Use this command to enable s6b authorization for 3G initial attach and GNGP handover.

apn authorize-with-hss egtp s2b

Enables s6b authorization for egtp-s2b.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `authorize-with-hss egtp s2b report-ipv6-addr`

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards s6b interface.

Usage Guidelines Use this command to enable s6b authorization for egtp-s2b.

apn authorize-with-hss egtp s2b gn-gp-enabled

Enables s6b authorization for 3G initial attach and GNGP handover.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `gn-gp-enabled report-ipv6-addr`

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards s6b interface.

Usage Guidelines Use this command to enable s6b authorization for 3G initial attach and GNGP handover.

apn authorize-with-hss egtp s2b s5-s8

Enables s6b authorization for egtp-s5s8.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `authorize-with-hss egtp s2b s5-s8 [gn_gp_option | report-ipv6-addr]`

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards s6b interface.

gn_gp_option

Specify to enable or disable s6b authorization for 3G initial attach and GnGp handover.

Must be one of the following:

- **gn-gp-disabled**: Disables s6b authorization for 3G initial attach and GnGp handover.
- **gn-gp-enabled**: Enables s6b authorization for 3G initial attach and GnGp handover.

Usage Guidelines Use this command to enable s6b authorization for egtp-s5s8.

apn authorize-with-hss egtp s5-s8

Enables s6b authorization for egtp-s5s8.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `s5-s8`

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards s6b interface.

gn_gp_option

Specify to enable or disable s6b authorization for 3G initial attach and GnGp handover.

Must be one of the following:

- **gn-gp-disabled**: Disables s6b authorization for 3G initial attach and GnGp handover.
- **gn-gp-enabled**: Enables s6b authorization for 3G initial attach and GnGp handover.

Usage Guidelines Use this command to enable s6b authorization for egtp-s5s8.

apn authorize-with-hss egtp s5-s8 s2b

Enables s6b authorization for egtp-s2b.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-service-apn-name-*apn_name*)

Syntax Description **s2b**

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards s6b interface.

gn_gp_option

Specify to enable or disable s6b authorization for 3G initial attach and GnGp handover.

Must be one of the following:

- **gn-gp-disabled**: Disables s6b authorization for 3G initial attach and GnGp handover.
- **gn-gp-enabled**: Enables s6b authorization for 3G initial attach and GnGp handover.

Usage Guidelines Use this command to enable s6b authorization for egtp-s2b.

apn authorize-with-hss lma

Enables IPv6 reporting through AAR towards s6b.

Command Modes Exec > Global Configuration

Syntax Description **lma [report-ipv6-addr | s6b-aaa-group *group_name*]**

report-ipv6-addr

Specify to enable IPv6 reporting through AAR towards s6b interface.

s6b-aaa-group *group_name*

Specify the AAA group name for s6b authorization.

Must be a string.

Usage Guidelines Use this command to enable IPv6 reporting through AAR towards s6b.

apn cc-profile

Configures the subscriber charging characteristics profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **cc-profile** *index*{ **credit-control-group** *cc_group_name* | **prepaid-prohibited** }

credit-control-group *cc_group_name*

Specify the credit control group name.

Must be a string.

prepaid-prohibited

Specify to disable prepaid for the configured profile index.

index

Specify the charging characteristics profile index.

Must be an integer.

-Or-

Must be one of the following:

- any

Usage Guidelines Use this command to configure the subscriber charging characteristics profile parameters.

apn content-filtering category

Configures Content Filtering category.

Command Modes Exec > Global Configuration

Syntax Description **category** **policy-id** *policy_id*

policy-id *policy_id*

Specify the Content Filtering policy ID.

Must be an integer in the range of 1-4294967295.

Usage Guidelines Use this command to configure Content Filtering category.

apn data-tunnel

Configures the data tunnel MTU parameter.

Command Modes Exec > Global Configuration

Syntax Description **data-tunnel** **mtu** *max_transmission_unit*

mtu *max_transmission_unit*

Specify the data tunnel MTU value, in octets.

Must be an integer.

Usage Guidelines Use this command to configure the data tunnel MTU parameter.

apn gtp group

Enables and configures the GTPP group to be used by this APN.

Command Modes Exec > Global Configuration

Syntax Description **gtp group** *gtp_group_name*

group *gtp_group_name*

Specify the GTPP group name.

Must be a string.

Usage Guidelines Use this command to enable and configure the GTPP group to be used by this APN.

apn ip access-group

Configures an IPv4/IPv6 access group for the current APN profile.

Syntax Description **ip access-group** *acl_group_name* [**in** | **out**]

group-name *acl_group_name*

Specify the name of the IPv4/IPv6 access group.

Must be a string.

in

Specify access group as inbound.

out

Specify access group as outbound.

Usage Guidelines Use this command to apply a single IPv4/IPv6 access control list to multiple subscribers via this APN for inbound or outbound IPv4/IPv6 traffic. If no traffic direction is specified, the selected access control list will be applied to both directions.

You can configure a maximum of eight elements with this command.

Example

```
ip access-group sampleipv4Group
```

apn ip source-violation

Enables or disables packet source validation for the current APN.

Syntax Description `ip source-violation ignore`**ignore**

Disables source address checking for the APN.

Usage Guidelines

Use this command to enable packet source validation. Source validation is useful if packet spoofing is suspected or for verifying packet routing and labeling within the network. Source validation requires the source address of received packets to match the IP address assigned to the subscriber (either statically or dynamically) during the session.

Example

The following command enables source address validation for the APN and configures a drop-limit of 15:

```
ip source-violation check drop-limit 15
```

apn ppp

Configures PPP parameters for specified APN.

Command Modes Exec > Global Configuration (config) > APN Configuration (config-apn-*apn_name*)

Syntax Description `ppp mtu max_transmission_unit`**mtu max_transmission_unit**

Specify the maximum transmission unit. Default Value: 1500.

Must be an integer.

Usage Guidelines Use this command to configure the PPP parameters for specified APN.

apn timeout

Configures session timeout parameters for the current APN.

Command Modes Exec > Global Configuration

Syntax Description `timeout idle idle_timeout`

idle *idle_timeout*

Specify the session idle timeout period for the current APN.

Must be an integer in the range of 0-4294967295.

Usage Guidelines Use this command to configure the session timeout parameters for the current APN.

clear subscriber

Clears subscriber data.

Command Modes Exec

Syntax Description `clear subscriber{ all | supi supi_id | config_specific_options }`

all

Specify to remove all subscriber data.

namespace *namespace*

Specify the product namespace under which to search.

Default Value: cisco-mobile-infra:none.

supi *supi_id*

Specify to remove subscriber data associated with the SUPI ID.

Must be a string.

Usage Guidelines Use this command to clear subscriber data.

client http header

Configures HTTP header parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `client http header http_header`

user-agent *user_agent_header*

Specify the user agent header.

Must be one of the following:

- **app-name**
- **cluster-name**
- **disable**

Default Value: app-name.

Usage Guidelines Use this command to configure HTTP header parameters.

client http ping

Configures HTTP ping parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `client http ping{ [timeout ping_timeout] [interval ping_interval] }`

interval *ping_interval*

Specify the time interval in milliseconds between two HTTP pings.

Must be an integer in the range of 0-30000.

Default Value: 10000.

timeout *ping_timeout*

Specify the ping timeout in milliseconds to detect remote host down.

Must be an integer in the range of 0-15000.

Default Value: 5000.

Usage Guidelines Use this command to configure HTTP ping parameters.

client inbound interface

Configures inbound client interface parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `client inbound interface interface`

interface *interface*

Specify the interface.

Usage Guidelines Use this command to configure inbound client interface parameters. Changes to the Interface Configuration mode (config-interface-<interface_name>).

client inbound interface limit overload

Configures Overload configuration parameters.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **limit overload reject-code** *response_code*

reject-code *response_code*

Specify the response code to be used when pending limit exceeds.

Must be an integer.

Usage Guidelines Use this command to configure Overload configuration parameters.

client inbound interface limit pending

Configures pending limit configuration.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **limit pending request** *max_pending_request_limit*

request *max_pending_request_limit*

Specify the maximum pending request limit to allow.

Must be an integer.

Default Value: 10240.

Usage Guidelines Use this command to configure pending limit configuration.

client inbound limit overload

Configures Overload configuration parameters.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **limit overload reject-code** *response_code*

reject-code *response_code*

Specify the response code to be used when pending limit exceeds.

Must be an integer.

Usage Guidelines Use this command to configure Overload configuration parameters.

client inbound limit pending

Configures pending limit configuration.

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **limit pending request** *max_pending_request_limit*

request *max_pending_request_limit*

Specify the maximum pending request limit to allow.

Must be an integer.

Default Value: 10240.

Usage Guidelines Use this command to configure pending limit configuration.

client outbound host ping

Configures outbound host ping parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description **client outbound host ping**{ [**timeout** *ping_timeout*] [**interval** *ping_interval*] }

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description **host ping**{ [**timeout** *ping_timeout*] [**interval** *ping_interval*] }

interval *ping_interval*

Specify the time interval, in milliseconds, between two pings.

Must be an integer in the range of 0-30000.

Default Value: 0.

timeout *ping_timeout*

Specify the ping timeout duration, in milliseconds, to detect remote host down.

Must be an integer in the range of 0-15000.

Default Value: 0.

Usage Guidelines Use this command to configure outbound host ping parameter.

client outbound interface

Configures outbound client interface parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `client outbound interface interface`

interface *interface*

Specify the interface.

Usage Guidelines Use this command to configure outbound client interface parameters. Changes to the Interface Configuration mode (config-interface-<interface_name>).

client outbound interface host ping

Configures outbound host ping parameter.

Command Modes Exec > Global Configuration (config)

Syntax Description `client outbound host ping{ [timeout ping_timeout] [interval ping_interval] }`

Command Modes Exec > Global Configuration (config) > Interface Configuration (config-interface-*interface_name*)

Syntax Description `host ping{ [timeout ping_timeout] [interval ping_interval] }`

interval *ping_interval*

Specify the time interval, in milliseconds, between two pings.

Must be an integer in the range of 0-30000.

Default Value: 0.

timeout *ping_timeout*

Specify the ping timeout duration, in milliseconds, to detect remote host down.

Must be an integer in the range of 0-15000.

Default Value: 0.

Usage Guidelines Use this command to configure outbound host ping parameter.

client outbound interface limit pending

Configures pending limit configuration.

Command Modes	Exec > Global Configuration (config)
Syntax Description	client outbound limit pending response <i>response_message_limit</i>
Command Modes	Exec > Global Configuration (config) > Interface Configuration (config-interface- <i>interface_name</i>)
Syntax Description	pending response <i>response_message_limit</i> response <i>response_message_limit</i> Specify the pending response message limit to detect remote host as down. Must be an integer. Default Value: 1024.
Usage Guidelines	Use this command to configure pending limit configuration.

client outbound limit pending

Configures pending limit configuration.

Command Modes	Exec > Global Configuration (config)
Syntax Description	client outbound limit pending response <i>response_message_limit</i>
Command Modes	Exec > Global Configuration (config) > Interface Configuration (config-interface- <i>interface_name</i>)
Syntax Description	pending response <i>response_message_limit</i> response <i>response_message_limit</i> Specify the pending response message limit to detect remote host as down. Must be an integer. Default Value: 1024.
Usage Guidelines	Use this command to configure pending limit configuration.

config-error info

Displays configuration error information.

Command Modes	Exec
Syntax Description	show config-error [info]
Usage Guidelines	Use this command to view configuration error information.

deployment

Configures the deployment parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

deployment [**app-name** *application_name* | **cluster-name** *cluster_name* | **dc-name** *datacenter_name* | **model** *deployment_model*]

app-name *application_name*

Specify the application name.

Must be a string.

cluster-name *cluster_name*

Specify the cluster name.

Must be a string.

dc-name *datacenter_name*

Specify the datacenter name.

Must be a string.

model *deployment_model*

Specify the deployment model.

Must be one of the following:

- **small**

Usage Guidelines

Use this command to configure the deployment parameters.

deployment resource

Configures the deployment CPU resource parameter.

Command Modes

Exec > Global Configuration (config) > Deployment Configuration (config-deployment)

Syntax Description

resource **cpu** *cpu_size*

cpu *cpu_size*

Specify the CPU size in millicores.

Must be an integer in the range of 2000-1000000.

Default Value: 18000.

Usage Guidelines Use this command to configure the deployment CPU resource parameter.

diagnostics info

Displays diagnostics information.

Command Modes Exec

Syntax Description `show diagnostics [info]`

Usage Guidelines Use this command to view diagnostics information.

dump transactionhistory

Creates dump of transaction history.

Command Modes Exec

Syntax Description `dump transactionhistory`

Usage Guidelines Use this command to create dump of transaction history.

edr

Configures EDR parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `edr reporting{ enable | disable } [subscribers subscribers_edr_reporting]`

reporting{ enable | disable }

Specify to enable or disable EDR reporting.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

subscribers subscribers_edr_reporting

Specify the subscribers for whom EDR reporting must be enabled.

Must be a string.

Usage Guidelines Use this command to configure EDR parameters.

You can configure a maximum of 10 elements with this command.

edr file files

Configures EDR file parameters.

Command Modes

Exec > Global Configuration

Syntax Description

```
edr reporting file{ enable | disable } file edr_file_name reporting{ enable | disable } verbose{ enable | disable }
```

reporting{ enable | disable }

Specify to enable or disable reporting of this file.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

verbose{ enable | disable }

Specify to enable or disable field description or long names in file.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

edr_file_name

Specify the EDR file name.

Usage Guidelines

Use this command to configure EDR file parameters.

edr file files flush

Configures file flush parameters.

Command Modes

Exec > Global Configuration

Syntax Description

```
flush interval file_flush_interval
```

interval *file_flush_interval*

Specify the file flush interval in milliseconds.

Must be an integer.

Default Value: 1000.

Usage Guidelines Use this command to configure file flush parameters.

edr file files limit

Configures .

Command Modes Exec > Global Configuration

Syntax Description `limit size max_single_file_size count max_files_to_preserve`

count max_files_to_preserve

Specify the maximum number of files to be preserved.

Must be an integer.

Default Value: 10.

size max_single_file_size

Specify the maximum single file size limit in MB.

Must be an integer.

Default Value: 100.

Usage Guidelines Use this command to configure .

endpoint all

Displays the status of endpoints.

Command Modes Exec

Syntax Description `show endpoint [all]`

Usage Guidelines Use this command to view the status of endpoints.

endpoint ep

Displays the endpoint parameters.

Command Modes Exec

Syntax Description `show endpoint [info]`

certificate-name *certificate_alias_name*

Specify the alias name for the certificate.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**
- **https**

Default Value: http.

Usage Guidelines

Use this command to view the endpoint parameters.

endpoint ep interface

Displays the endpoint interface.

Command Modes

Exec > Global Configuration

Syntax Description

interface **interface-type** *interface_type*

certificate-name *certificate_alias_name*

Specify the alias name for certificate.

interface-type *interface_type*

Specify the interface type.

loopbackEth *pod_interface*

Specify the pod interface.

Must be a string.

loopbackPort *port_number*

Specify the port number.

Must be an integer.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**
- **https**

Default Value: http.

Usage Guidelines Use this command to configure the interface.

endpoint ep interface dispatcher

Displays the dispatcher queue support details for the interface.

Command Modes Exec > Global Configuration

Syntax Description `dispatcher`

Usage Guidelines Use this command to view dispatcher queue support details for the interface.

endpoint ep interface sla

Configures the SLA parameters.

Command Modes Exec > Global Configuration

Syntax Description `sla response response_time procedure procedure_time`

procedure *procedure_time*

Specify the procedure time in milliseconds.

Must be an integer in the range of 1000-120000.

response *response_time*

Specify the response time in milliseconds.

Must be an integer in the range of 1000-120000.

Usage Guidelines Use this command to configure the SLA parameters.

endpoint ep interface vip

Configures the virtual IP address (VIP) parameters.

Command Modes Exec > Global Configuration

Syntax Description `vip{ vip-ip host_address | vip-port port_number } offline`

offline

Specify when the virtual IP address (VIP) is offline.

vip-ip *host_address*

Specify the host address.

Must be a string.

vip-port *port_number*

Specify the port number.

Must be an integer.

Usage Guidelines Use this command to configure the VIP address parameters.

endpoint ep system-health-level crash

Configures system health crash parameters.

Command Modes Exec > Global Configuration

Syntax Description **crash** **cpu-percent** *cpu_percentage* **memory-in-mbs** *memory* **num-of-goroutine** *goroutine_per_core*

cpu-percent *cpu_percentage*

Specify the CPU percentage.

Must be an integer.

Default Value: 80.

memory-in-mbs *memory*

Specify the memory in MBs.

Must be an integer.

Default Value: 2048.

num-of-goroutine *goroutine_per_core*

Specify the number of goroutine per core.

Must be an integer.

Default Value: 45000.

Usage Guidelines Use this command to configure system health crash parameters.

endpoint ep system-health-level critical

Configures system health critical parameters.

Command Modes Exec > Global Configuration

Syntax Description **critical** **cpu-percent** *cpu_percentage* **memory-in-mbs** *memory* **num-of-goroutine** *goroutine_per_core*

cpu-percent *cpu_percentage*

Specify the CPU percentage.

Must be an integer.

Default Value: 60.

memory-in-mbs *memory*

Specify the memory in MBs.

Must be an integer.

Default Value: 1024.

num-of-goroutine *goroutine_per_core*

Specify the number of goroutine per core.

Must be an integer.

Default Value: 35000.

Usage Guidelines Use this command to configure system health critical parameters.

endpoint ep system-health-level warn

Configures system health warning parameters.

Command Modes Exec > Global Configuration

Syntax Description **warn** **cpu-percent** *cpu_percentage* **memory-in-mbs** *memory* **num-of-goroutine** *goroutine_per_core*

cpu-percent *cpu_percentage*

Specify the CPU percentage.

Must be an integer.

Default Value: 50.

memory-in-mbs *memory*

Specify the memory in MBs.

Must be an integer.

Default Value: 512.

num-of-goroutine *goroutine_per_core*

Specify the number of goroutine per core.

Must be an integer.

Default Value: 25000.

Usage Guidelines Use this command to configure system health warning parameters.

endpoint ep vip

Configures virtual IP (VIP) parameters.

Command Modes Exec

Syntax Description `vip vip-ip vip_host_detail vip-port vip_port_number offline`

offline

Specify the VIP-IP as offline.

vip-ip vip_host_detail

Specify the host detail.

Must be a string.

vip-port vip_port_number

Specify the VIP port number.

Must be an integer.

Usage Guidelines Use this command to configure VIP parameters.

endpoint info

Displays the endpoint information.

Command Modes Exec > Global Configuration

Syntax Description `show endpoint info [Interface interface | internal internal_external | startTime start_time | status endpoint_status | stoppedTime stop_time | type endpoint_type]`

Interface interface_name

Displays the interface name of the endpoint.

Must be a string.

address

Displays the host address and port number.

Must be a string.

endpoint *endpoint_name*

Displays the endpoint name.

Must be a string.

internal *internal_external*

Displays whether the endpoint is of internal or external type.

Must be a string.

startTime *start_time*

Displays the time at which the endpoint started.

Must be a string.

status *endpoint_status*

Displays the status of the endpoint.

Must be a string.

stoppedTime *stop_time*

Displays the time at which the endpoint stopped.

Must be a string.

type *endpoint_type*

Displays the endpoint type.

Must be a string.

Usage Guidelines Use this command to view the endpoint information.

group nf-mgmt

Configures NF management group name.

Command Modes Exec > Global Configuration

Syntax Description **nf-mgmt** *mgmt_group_name*{ **nrf-mgmt-group** *nrf_mgmt_group_name* | **nrf-auth-group** *nrf_auth_group_name* | **locality** *locality_name* | **re-register**{ **false** | **true** } }

locality *locality_name*

Specify locality information.

Must be a string.

nrf-mgmt-group *nrf_mgmt_group_name*

Specify the NRF management group name.

Must be a string.

mgmt_group_name

Specify the NRF management group name.

Must be a string.

Usage Guidelines Use this command to configure NF management group name.

group nf-mgmt heartbeat

Configures heartbeat interval time in seconds.

Command Modes Exec > Global Configuration

Syntax Description **heartbeat interval** *heartbeat_interval*

interval heartbeat_interval

Specify the heartbeat interval time in seconds.

Must be an integer.

Usage Guidelines Use this command to configure the heartbeat interval time in seconds.

group nrf discovery

Configures NRF discovery group parameters.

Command Modes Exec > Global Configuration

Syntax Description **discovery** *group_name* [**nrf-type** *nrf_type*]

nrf-type nrf_type

Specify the NRF type.

Must be one of the following:

- **PLMN**: PLMN.
- **SHARED**: SHARED.
- **SLICE-LOCAL**: SLICE-LOCAL.

group_name

Specify the NRF discovery group name.

Must be a string.

Usage Guidelines Use this command to configure the NRF discovery group configuration.

group nrf discovery service type nrf

Configures the NRF discovery service name.

Command Modes Exec > Global Configuration

Syntax Description `nrf nrf_service_name [responsetimeout response_timeout]`

responsetimeout response_timeout

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

nrf_service_name

Specify the NRF discovery service name.

Must be one of the following:

- **nnrf-disc**

Usage Guidelines Use this command to configure the NRF discovery service name.

group nrf discovery service type nrf endpoint-profile

Configures endpoint profile parameters.

Command Modes Exec > Global Configuration

Syntax Description `endpoint-profile endpoint_profile_name{ api-uri-prefix api_uri_prefix | api-root api_root | uri-scheme uri_scheme }`

api-root api_root

Specify the API root.

Must be a string.

api-uri-prefix api_uri_prefix

Specify the API URI prefix.

Must be a string.

uri-scheme uri_scheme

Specify the URI scheme.

Must be one of the following:

- **http**
- **https**

endpoint_profile_name

Specify the endpoint profile name.

Must be a string.

Usage Guidelines

Use this command to configure endpoint profile parameters.

group nrf discovery service type nrf endpoint-profile endpoint-name

Configures endpoint parameters.

Command Modes

Exec > Global Configuration

Syntax Description

endpoint-name *endpoint_name* [**priority** *priority* | **capacity** *endpoint_capacity*]

capacity *endpoint_capacity*

Specify the endpoint capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

priority *priority*

Specify the node priority for endpoint.

Must be an integer in the range of 0-65535.

endpoint_name

Specify the endpoint name.

Must be a string.

Usage Guidelines

Use this command to configure endpoint parameters.

group nrf discovery service type nrf endpoint-profile endpoint-name primary ip-address

Configures the endpoint IP address and port number.

Command Modes	Exec > Global Configuration
Syntax Description	<code>ip-address</code> { { <code>ipv4</code> <i>ipv4_address</i> <code>ipv6</code> <i>ipv6_address</i> } <code>port</code> <i>port_number</i> } port <i>port_number</i> Specify the port number. Must be an integer in the range of 0-65535.
Usage Guidelines	Use this command to configure the endpoint IP address and port number.

group nrf discovery service type nrf endpoint-profile endpoint-name secondary ip-address

Configures the endpoint IP address and port number.

Command Modes	Exec > Global Configuration
Syntax Description	<code>ip-address</code> { { <code>ipv4</code> <i>ipv4_address</i> <code>ipv6</code> <i>ipv6_address</i> } <code>port</code> <i>port_number</i> } port <i>port_number</i> Specify the port number. Must be an integer in the range of 0-65535.
Usage Guidelines	Use this command to configure the endpoint IP address and port number.

group nrf discovery service type nrf endpoint-profile endpoint-name tertiary ip-address

Configures the endpoint IP address and port number.

Command Modes	Exec > Global Configuration
Syntax Description	<code>ip-address</code> { { <code>ipv4</code> <i>ipv4_address</i> <code>ipv6</code> <i>ipv6_address</i> } <code>port</code> <i>port_number</i> } port <i>port_number</i> Specify the port number. Must be an integer in the range of 0-65535.
Usage Guidelines	Use this command to configure the endpoint IP address and port number.

group nrf discovery service type nrf endpoint-profile version uri-version

Configures URI version information.

Command Modes Exec > Global Configuration

Syntax Description **uri-version** *uri_version* [**full-version** *full_version*]

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri_version

Specify the URI version.

Must be a string in the pattern v\d.

Usage Guidelines Use this command to configure URI version information.

group nrf mgmt

Configures the NRF self-management group parameters.

Command Modes Exec > Global Configuration

Syntax Description **mgmt** *group_name* [**nrf-type** *nrf_type*]

nrf-type *nrf_type*

Specify the NRF type.

Must be one of the following:

- **PLMN**: PLMN.
- **SHARED**: SHARED.
- **SLICE-LOCAL**: SLICE-LOCAL.

group_name

Specify the NRF self-management group name.

Must be a string.

Usage Guidelines Use this command to configure the NRF self-management group parameters.

group nrf mgmt service type nrf

Configures the NRF self-management service name.

Command Modes Exec > Global Configuration

Syntax Description **nrf nrf-service-name** *nrf_service_name* [**responsetimeout** *response_timeout*]

nrf-service-name *nrf_service_name*

Specify the NRF service name.

Must be one of the following:

- **nnrf-nfm**

responsetimeout *response_timeout*

Specify the response timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

Usage Guidelines Use this command to configure the NRF self-management service name.

group nrf mgmt service type nrf endpoint-profile

Configures endpoint profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-profile** *endpoint_profile_name*{ **api-uri-prefix** *api_uri_prefix* | **api-root** *api_root* | **uri-scheme** *uri_scheme* }

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**
- **https**

endpoint_profile_name

Specify the endpoint profile name.

Must be a string.

Usage Guidelines Use this command to configure endpoint profile parameters.

group nrf mgmt service type nrf endpoint-profile endpoint-name

Configures the endpoint name.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-name** *endpoint_name* [**priority** *priority*]

max-retry-count

Specify the maximum retry count.

Must be an integer in the range of 0-10.

Default Value: 3.

priority priority

Specify the node priority for endpoint.

Must be an integer in the range of 0-65535.

endpoint_name

Specify the endpoint name.

Must be a string.

Usage Guidelines Use this command to configure the endpoint name.

group nrf mgmt service type nrf endpoint-profile endpoint-name primary ip-address

Configures the endpoint IP address and port number.

Command Modes Exec > Global Configuration

Syntax Description **ip-address**{ { **ipv4** *ipv4_address* | **ipv6** *ipv6_address* } | **port** *port_number* }

ipv4 *ipv4_address*

Specify the IPv4 address.

ipv6 *ipv6_address*

Specify the IPv6 address.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

group nrf mgmt service type nrf endpoint-profile endpoint-name secondary ip-address

Configures the endpoint IP address and port number.

Command Modes

Exec > Global Configuration

Syntax Description

```
ip-address{{ ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }
```

ipv4 *ipv4_address*

Specify the IPv4 address.

ipv6 *ipv6_address*

Specify the IPv6 address.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

group nrf mgmt service type nrf endpoint-profile endpoint-name tertiary ip-address

Configures the endpoint IP address and port number.

Command Modes

Exec > Global Configuration

Syntax Description

```
ip-address{{ ipv4 ipv4_address | ipv6 ipv6_address } | port port_number }
```

ipv4 *ipv4_address*

Specify the IPv4 address.

ipv6 *ipv6_address*

Specify the IPv6 address.

port *port_number*

Specify the port number.

Must be an integer in the range of 0-65535.

Usage Guidelines

Use this command to configure the endpoint IP address and port number.

group nrf mgmt service type nrf endpoint-profile version uri-version

Configures version information.

Command Modes

Exec > Global Configuration

Syntax Description

uri-version *uri_version* [**full-version** *full_version*]

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri_version

Specify the URI version.

Must be a string in the pattern v\d.

Usage Guidelines

Use this command to configure the version information.

gtp group

Configures GTPP group related parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

gtp *gtp_group_name*

gtp_group_name

Specify the GTPP group name.

Must be a string.

Usage Guidelines Use this command to configure GTPP group related parameters.

gtpp group gtpp

Disables GTPP trigger conditions that cause either partial CDR record closure or opening of a new CDR record container. GTPP Triggers are specified in 3GPP TS 32.251 v6.6.0. All GTPP trigger changes take effect immediately, except volume-limit.

Command Modes Exec > Global Configuration > GTPP Group Configuration

Syntax Description `gtpp trigger{ time-limit | volume-limit }`

Usage Guidelines Use this command to disable or enable GTPP triggers that can cause partial CDR record closure or cause a new CDR to be created.

Example

The following command disables partial record closure when a configured time limit is reached:

```
gtpp trigger time-limit
```

gtpp group gtpp egcdr

Configures the eG-CDR and P-CDR (P-GW CDR) parameters and triggers.

Command Modes Exec > Global Configuration > GTPP Group Configuration

Syntax Description `gtpp egcdr{ service-data-flow threshold{ interval duration | volume{ downlink bytes | uplink bytes | total bytes } } | service-idle-timeout{ 0 | service_idle_timeout } }`

Usage Guidelines Use this command to configure individual triggers for eG-CDR/P-CDR generation. Use the service-data-flow threshold option to configure the thresholds for closing a service data flow container within an eG-CDR (eG-CDRs for GGSN and P-CDRs for P-GW) during flow-based charging (FBC). A service data flow container has statistics regarding an individual content ID.

gtpp group gtpp egcdr final-record closing-cause

Configures closing cause for final EGCDR.

Command Modes Exec > Global Configuration > GTPP Group Configuration

Syntax Description `gtpp egcdr final-record closing-cause{ same-in-all-partials | unique }`

same-in-all-partials

Specify same closing cause for multiple final EGCDR(s).

unique

Specify unique closing cause for final EGCDR.

Usage Guidelines Use this command to configure closing cause for final EGCDR.

gtp group gtp egcdr losdv-max-containers

Configures maximum number of LoSDV containers in one EGCDR.

Command Modes Exec > Global Configuration > GTPP Group Configuration

Syntax Description `losdv-max-containers` *max_containers*

max_containers

Specify the number of LOSDV containers.

Must be an integer in the range of 1-255.

Usage Guidelines Use this command to configure the maximum number of LoSDV containers in one EGCDR.

gtp group gtp egcdr service-data-flow threshold

Configures service data flow related parameters.

Command Modes Exec > Global Configuration > GTPP Group Configuration

Syntax Description `threshold interval` *duration*

interval duration

Specify the time interval, in seconds, to close the eG-CDR/P-CDR if the minimum time duration thresholds for service data flow containers satisfied in flow-based charging. By default, this option is disabled.

Must be an integer in the range of 60-40000000.

Usage Guidelines Use this command to assign volume or interval values to the interim GCDRs.

gtp group gtp egcdr service-data-flow threshold volume

Configures the uplink/downlink volume octet counts for the generation of interim GCDRs.

Command Modes Exec > Global Configuration > GTPP Group Configuration

Syntax Description

```
volume{ downlink bytes | uplink bytes | total bytes }
```

downlink bytes

Specify the limit for the number of downlink octets after which the eG-CDR/P-CDR is closed.

Must be an integer in the range of 100000-4000000000.

total bytes

Specify the limit for the total number of octets (uplink+downlink) after which the eG-CDR/P-CDR is closed.

Must be an integer in the range of 100000-4000000000.

uplink bytes

Specify the limit for the number of uplink octets after which the eG-CDR/P-CDR is closed.

Must be an integer in the range of 100000-4000000000.

Usage Guidelines

Use this command to configure the uplink/downlink volume octet counts for the generation of interim GCDRs.

gtpb group gtpb egcdr service-idle-timeout

Enables configuration for service idle out closure of LOSDV container.

Command Modes

Exec > Global Configuration > GTPP Group Configuration

Syntax Description

```
gtpb egcdr service-idle-timeout{ zero | service_idle_timeout }
```

zero

Specify no service-idle-timeout trigger.

Must be one of the following:

- 0

service_idle_timeout

Specify time limit in seconds for service-idle-timeout.

Must be an integer in the range of 10-86400.

Usage Guidelines

Use this command to enable configuration for service idle out closure.

gtpb group gtpb trigger

Configures triggers for CDR.

Command Modes

Exec > Global Configuration > GTPP Group Configuration

Syntax Description `trigger{ time-limit | volume-limit }`

time-limit

When this trigger is disabled, no partial record closure occurs when the configured time limit is reached.
Default: Enabled.

volume-limit

When this trigger is disabled no partial record closure occurs when volume limit is reached. Default: Enabled.

Usage Guidelines Use this command to configure triggers for CDR.

gtp group gtp trigger egcdr

Enables or disables and configures eGCDR-related parameters.

Command Modes Exec > Global Configuration > GTPP Group Configuration

Syntax Description `egcdr max-losdv`

max-losdv

Enable trigger for eGCDR release at MAX LoSDV containers.

Usage Guidelines Use this command to enable or disable and configure eGCDR-related parameters.

infra metrics experimental

Configures experimental configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description `infra metrics experimental version experimental_metrics_version`

version experimental_metrics_version

Specify the experimental metrics version to be enabled.

Must be an integer in the range of 0-4.

Default Value: 0.

Usage Guidelines Use this command to configure experimental configuration.

infra metrics verbose verboseLevels

Configures verbose configuration parameters.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<pre>infra metrics verbose podType <i>pod_type</i> level <i>verbose_level</i></pre> <p>level <i>verbose_level</i></p> <p>Specify the verbose level.</p> <p>Must be one of the following:</p> <ul style="list-style-type: none"> • debug • production • trace <p>Default Value: "trace".</p> <p>podType <i>pod_type</i></p> <p>Specify the pod type.</p> <p>Must be one of the following:</p> <ul style="list-style-type: none"> • load-balancer • protocol • service

Usage Guidelines Use this command to configure verbose configuration parameters.

infra transaction limit

Configures the maximum stage limit per transaction.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<pre>infra transaction limit stage <i>max_stage_limit</i></pre> <p>stage <i>max_stage_limit</i></p> <p>Specify the maximum stage limit per transaction.</p> <p>Must be an integer.</p> <p>Default Value: 100.</p>

Usage Guidelines Use this command to configure the maximum stage limit per transaction.

infra transaction limit consecutive same

Configures the maximum consecutive stage limit per transaction.

Command Modes Exec > Global Configuration (config)

Syntax Description `infra transaction limit consecutive same stage max_consecutive_stage_limit`

stage *max_consecutive_stage_limit*

Specify the maximum consecutive stage limit per transaction.

Must be an integer.

Default Value: 10.

Usage Guidelines Use this command to configure the maximum consecutive stage limit per transaction.

infra transaction loop

Configures transaction loop configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description `infra transaction loop detection{ enable | disable }`

detection{ **enable | **disable** }**

Specify to enable or disable loop detection.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

Usage Guidelines Use this command to configure transaction loop configuration.

infra transaction loop category

Configures category.

Command Modes Exec > Global Configuration (config)

Syntax Description `infra transaction loop category category`

category *category*

Specify the category.

Usage Guidelines Use this command to configure category.

infra transaction loop category threshold

Configures threshold.

Command Modes Exec > Global Configuration (config)

Syntax Description `infra transaction threshold interval loop_detect_interval`

interval loop_detect_interval

Specify the time interval in seconds to be considered to detect loop.

Must be an integer.

Default Value: 5.

Usage Guidelines Use this command to configure threshold.

infra transaction loop category threshold thresholds

Configures thresholds.

Command Modes Exec > Global Configuration

Syntax Description `thresholds threshold count max_transactions action threshold_action`

action threshold_action

Specify the action to be take on threshold breach.

Must be one of the following:

- **kill-session**
- **log-event**
- **noop**

Default Value: "noop".

count max_transactions

Specify the maximum number of transactions for the threshold interval.

Must be an integer.

Default Value: 100.

threshold

Specify the threshold.

Must be one of the following:

- **high**
- **low**

Usage Guidelines Use this command to configure thresholds.

k8 label pod-group-config

Configures the K8 node affinity label parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `k8 label vm_group key label_key value label_value`

key label_key

Specify the label key.

Must be a string.

value label_value

Specify the label value.

Must be a string.

vm_group

Specify the VM group.

Must be one of the following:

- **cdl-layer**
- **oam-layer**
- **protocol-layer**
- **service-layer**

Usage Guidelines Use this command to configure the K8 node affinity label parameters.

logging error

Configures error logging options.

Command Modes Exec > Global Configuration (config)

Syntax Description `logging error stack{ enable | disable }`

stack{ enable | disable }

Specify to enable or disable error stack.

Must be one of the following:

- **disable**
- **enable**

Default Value: enable.

Usage Guidelines

Use this command to configure error logging options.

logging level

Configures the logging level.

Command Modes

Exec > Global Configuration (config)

Syntax Description

```
logging level{ application application_log_level | monitor-subscriber  
monitor_subscriber_log_level | tracing tracing_log_level | transaction  
transaction_log_level }
```

application *application_log_level*

Specify the log level for application log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

monitor-subscriber *monitor_subscriber_log_level*

Specify the log level for subscriber monitoring.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**

- warn

tracing *tracing_log_level*

Specify the log level for tracing log type.

Must be one of the following:

- debug
- error
- info
- off
- trace
- warn

transaction *transaction_log_level*

Specify the log level for transaction log type.

Must be one of the following:

- debug
- error
- info
- off
- trace
- warn

Usage Guidelines Configures logging parameters. Use this command to configure the logging level.

logging logger

Configures logger parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `logging name` *logger_name*

logger_name

Specify the logger name in the format "module.component.interface".

Must be a string.

Usage Guidelines Use this command to configure logger parameters.

logging logger level

Configures the logging level.

Command Modes Exec > Global Configuration

Syntax Description `logging name logger_name level{ application application_log_level | tracing tracing_log_level | transaction transaction_log_level }`

application *application_log_level*

Specify the log level for application log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

monitor-subscriber *monitor_subscriber_log_level*

Specify the log level for subscriber monitoring.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

tracing *tracing_log_level*

Specify the log level for tracing log type.

Must be one of the following:

- **debug**
- **error**
- **info**

- **off**
- **trace**
- **warn**

transaction *transaction_log_level*

Specify the log level for transaction log type.

Must be one of the following:

- **debug**
- **error**
- **info**
- **off**
- **trace**
- **warn**

Usage Guidelines Use this command to configure the logging level type.

logging transaction

Configures the transaction logging options.

Command Modes Exec > Global Configuration (config)

Syntax Description `logging transaction{ duplicate{ enable | disable } | max-file-size max_file_size | max-rotation max_rotations | message{ enable | disable } | persist{ enable | disable } }`

duplicate{ enable | disable }

Specify whether to enable or disable the duplicate logs in transaction logging.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

max-file-size *max_file_size*

Specify the maximum transaction file size in MB.

Must be an integer in the range of 1-10000.

Default Value: 50.

max-rotation *max_max_rotations*

Specify the maximum number of file rotations.

Must be an integer in the range of 2-1000.

Default Value: 10.

message{ *enable* | *disable* }

Specify whether to enable or disable messages in transaction logging.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

persist{ *enable* | *disable* }

Specify whether to enable or disable file-based transaction logging.

Must be one of the following:

- **disable**
- **enable**

Default Value: disable.

Usage Guidelines Configures logging parameters. Use this command to configure the transaction logging options.

nf-tls ca-certificates

Configures the certificate name and data configuration.

Command Modes Exec > Global Configuration

Syntax Description **nf-tls ca-certificates** *certificate_alias_name* [**cert-data** *pem_certificate_data*]

cert-data *pem_certificate_data*

Specify the certificate data in PEM format.

Must be a string.

certificate_alias_name

Specify the alias name for certificate.

Must be a string.

Usage Guidelines Use this command to configure the certificate name and data configuration.

nf-tls certificate-status

Displays certificate status.

Command Modes Exec

Syntax Description `show nf-tls [certificate-status]`

Usage Guidelines Use this command to view the certificate status.

nf-tls certificates

Configures the certificate name, data, and key configuration.

Command Modes Exec > Global Configuration

Syntax Description `nf-tls certificates certificate_alias_name [[cert-data pem_certificate_data] [private-key pem_certificate_private_key]]`

cert-data pem_certificate_data

Specify the certificate data in PEM format.

Must be a string.

private-key pem_certificate_private_key

Specify the certificate private key in PEM format.

Must be a string.

certificate_alias_name

Specify the alias name for certificate.

Must be a string.

Usage Guidelines Use this command to configure the certificate name, data, and key configuration.

nrf

Configures NRF Client operational data.

Command Modes Exec > Global Configuration

Syntax Description `nrf`

Usage Guidelines Use this command to configure the NRF Client operational data.

nrf discovery-info

Displays discovery information.

Command Modes Exec > Global Configuration

Syntax Description `show discovery-info`

Usage Guidelines Use this command to view discovery information.

nrf discovery-info discovery-filter

Displays NF discovery filter information.

Command Modes Exec > Global Configuration

Syntax Description `show discovery-filter`

Usage Guidelines Use this command to view NF discovery filter information.

nrf discovery-info discovery-filter nf-discovery-profile

Displays discovery profile information.

Command Modes Exec > Global Configuration

Syntax Description `show nf-discovery-profile`

Usage Guidelines Use this command to view NF discovery profile information.

nrf discovery-info discovery-filter nf-discovery-profile nf-service

Displays NF service information.

Command Modes Exec > Global Configuration

Syntax Description `show nf-service`

Usage Guidelines Use this command to view NF service information.

nrf registration-info

Displays registration information.

Command Modes	Exec > Global Configuration
Syntax Description	<code>show registration-info</code>
Usage Guidelines	Use this command to view registration information.

nrf subscription-info

Displays NF subscription information.

Command Modes	Exec > Global Configuration
Syntax Description	<code>show subscription-info</code>
Usage Guidelines	Use this command to view NF subscription information.

nssai

Configures the list of DNN profile names.

Command Modes	Exec > Global Configuration (config)
Syntax Description	<code>nssai name slice_name [[dnn profile_names_list] [sst slice/service_type] [sdt slice_differentiator_type] [tai-group-list tai_group_list]]</code>

dnn profile_names_list

Specify the list of actual DNN profile names configured.

Must be a string.

name slice_name

Specify the slice name.

Must be a string.

sdt slice_differentiator_type

Specify the Slice Differentiator Type (SDT).

Must be a string.

sst slice/service_type

Specify the Slice/Service Type (SST).

Must be a string.

tai-group-list tai_group_list

Specify the list of TAI groups for this NSSAI.

Must be a string.

Usage Guidelines Use this command to configure the list of actual DNN profile names.

peers all

Displays the peer configuration information.

Command Modes Exec

Syntax Description `show peers [all]`

Usage Guidelines Use this command to view the peer configuration information.

policy dnn

Configures the virtual DNN to operator DNN mapping.

Command Modes Exec > Global Configuration (config)

Syntax Description `policy dnn policy_name [profile dnn_profile_name]`

dnn *policy_name*

Specify the DNN name.

Must be a string.

profile *dnn_profile_name*

Specify the DNN profile.

Must be a string.

Usage Guidelines Use this command to configure the virtual DNN to operator DNN mapping.

policy dnn dnn dnn

Configures the virtual DNN to a network DNN.

Syntax Description `dnn dnn_name [profile dnn_profile_name]`

dnn-list *dnn_list*

Specify the additional list of DNNs to be associated for the DNN profile.

Must be a string.

dnn *dnn_name*

Specify the DNN name.

Must be a string.

profile *dnn_profile_name*

Specify the DNN profile name.

Must be a string.

Usage Guidelines

Use this command to configure the virtual DNN to a network DNN.

policy dnn dnn network-identifier

Configures the network identifier.

Syntax Description

network-identifier *network_identifier*

network-identifier *network_identifier*

Specify the network identifier.

Must be a string.

profile *profile*

Specify the profile.

Must be a string.

Usage Guidelines

Use this command to configure the network identifier.

policy dnn dnn network-identifier operator-identifier

Configures the operator identifier.

Syntax Description

operator-identifier *operator_identifier*

operator-identifier *operator_identifier*

Specify the operator identifier.

Must be a string.

profile *profile*

Specify the profile.

Must be a string.

Usage Guidelines

Use this command to configure the operator identifier.

policy dnn dnn operator-identifier

Configures the operator identifier.

Syntax Description `operator-identifier operator_identifier`

operator-identifier operator_identifier

Specify the operator identifier.

Must be a string.

profile profile

Specify the profile.

Must be a string.

Usage Guidelines Use this command to configure the operator identifier.

policy network-capability

Configures Network Capability Policy configuration.

Command Modes Exec

Syntax Description `policy network-capability policy_name [link-mtu link_mtu | max-supported-pkt-filter max_supported_pkt_filter | nw-support-local-address-tft{ false | true }]`

link-mtu link_mtu

Specify the network capability policy name.

Must be an integer in the range of 1280-2000.

Default Value: 1500.

max-supported-pkt-filter max_supported_pkt_filter

Specify the maximum supported packet filters.

Must be an integer.

Default Value: 16.

nw-support-local-address-tft{ false | true }

Enable or disable network support for local address in TFT.

Must be one of the following:

- false

- **true**

Default Value: false.

policy_name

Specify the network capability policy name.

Must be a string.

Usage Guidelines Use this command to configure Network Capability Policy configuration.

policy operator

Configures the operator policy configuration.

Syntax Description `policy operator policy_name`

operator policy_name

Specify the operator policy name.

Must be a string.

roaming-status roaming_status

Specify the roaming status.

Must be one of the following:

- **roamer**
- **visitor-hrt**
- **visitor-lbo**

Usage Guidelines Use this command to configure the operator policy specific configuration.

policy operator policy

Configures DNN policy parameters.

Syntax Description `policy dnn dnn_policy_name [network-capability network_capability]`

dnn dnn_policy_name

Specify the DNN policy name.

Must be a string.

network-capability *network_capability*

Specify the network capability.

Must be a string.

secondary *secondary*

Specify the secondary.

Must be a string.

Usage Guidelines Use this command to configure DNN policy parameters.

policy subscriber

Configures SMF policy parameters.

Syntax Description `policy subscriber` *policy_name*

policy_name

Specify the subscriber policy name.

Must be a string.

Usage Guidelines Use this command to configure SMF policy parameters.

policy subscriber list-entry

Configures operator policy selection match criteria definition.

Syntax Description `precedence` *precedence_number* [`sst` *slice/service_type* | `sdt` *slice_differentiator_type* | `supi-start-range` *supi_start_range* | `supi-stop-range` *supi_stop_range* | `gpsi-start-range` *gpsi_start_range* | `gpsi-stop-range` *gpsi_stop_range* | `pei-start-range` *pei_start_range* | `pei-stop-range` *pei_stop_range* | `operator-policy` *operator_policy_name*]

gpsi-start-range *gpsi_start_range*

Specify the GPSI start range.

Must be an integer in the range of 1000000000-9999999999999999.

gpsi-stop-range *gpsi_stop_range*

Specify the GPSI stop range.

Must be an integer in the range of 1000000000-9999999999999999.

imsi-start-range *imsi_start_range*

Specify the IMSI start range.

Must be an integer in the range of 1000000000000000-9999999999999999.

imsi-stop-range *imsi_stop_range*

Specify the IMSI stop range.

Must be an integer in the range of 1000000000000000-9999999999999999.

operator-policy *operator_policy_name*

Specify the operator policy name.

Must be a string.

pei-start-range *pei_start_range*

Specify the PEI start range.

Must be an integer in the range of 1000000000000000-9999999999999999.

pei-stop-range *pei_stop_range*

Specify the PEI stop range.

Must be an integer in the range of 1000000000000000-9999999999999999.

precedence *precedence_number*

Specify the precedence for entry.

Must be an integer in the range of 1-2048.

sdt *slice_differentiator_type*

Specify the Slice Differentiator Type (SDT).

Must be a string.

sst *slice/service_type*

Specify the Slice/Service Type (SST).

Must be a string.

supi-start-range *supi_start_range*

Specify the SUPI start range.

Must be an integer in the range of 1000000000000000-9999999999999999.

supi-stop-range *supi_stop_range*

Specify the SUPI stop range.

Must be an integer in the range of 1000000000000000-9999999999999999.

Usage Guidelines

Use this command to configure operator policy selection match criteria definition.

policy subscriber list-entry imsi

Configures subscriber International Mobile Station Identification (IMSI).

Syntax Description `imsi`

mcc mobile_country_code

Specify the Mobile Country Code (MCC).

Must be a string.

mnc mobile_network_code

Specify the Mobile Network code (MNC).

Must be a string.

Usage Guidelines Use this command to configure subscriber IMSI.

policy subscriber list-entry imsi msin

Configures MSIN range for mobile subscriber identification number.

Syntax Description `msin`

first start_msin_range

Specify starting value of the MSIN range.

Must be an integer in the range of 1-9999999999.

last end_msin_range

Specify the ending value of the MSIN range.

Must be an integer in the range of 1-9999999999.

Usage Guidelines Use this command to configure MSIN range for mobile subscriber identification number.

policy subscriber list-entry serving-plmn

Configures serving PLMN parameters.

Syntax Description `serving-plmn [mcc mobile_country_code | mnc mnc_list | mnc mobile_network_code |]`

mcc mobile_country_code

Specify the mobile country code (MCC) portion of the PLMN ID.

Must be a string.

mnc-list *mnc_list*

Specify the MNC list.

Must be a string.

mnc *mobile_network_code*

Specify the mobile network code (MNC) portion of the PLMN ID.

Must be a string.

Usage Guidelines Use this command to configure serving PLMN parameters.

policy upf-selection

Configures UPF selection parameters.

Syntax Description `policy upf-selection upf_name`

upf_name

Specify the UPF name.

Must be a string.

Usage Guidelines Use this command to configure UPF selection parameters.

policy upf-selection list-entry

Configures UPF selection match criteria definition.

Syntax Description `list-entry`

precedence *entry_precedence*

Specify the precedence for entry.

Must be an integer in the range of 1-4.

Usage Guidelines Use this command to configure UPF selection match criteria definition.

policy upf-selection list-entry query-params

Configures the query parameter for UPF selection.

Command Modes Exec > Global Configuration > Profile Configuration

Syntax Description **query-params** *options*

query-params *query_params*

Specify the query parameters. If both pdn-type-subscription and pdn-type-session are configured, pdn-type-subscription will be considered.

Must be one of the following:

- **dcnr**
- **dnn**
- **location**
- **pdn-type-session**
- **pdn-type-subscription**
- **slice**

Usage Guidelines Use this command to configure the query parameter for UPF selection.

profile access

Configures the Access profile.

Command Modes Exec > Global Configuration

Syntax Description **profile access** *profile_name*

profile_name

Specify the Access profile name.

Must be a string.

Usage Guidelines Use this command to configure the Access profile.

profile access eps-fallback cbr

Configures Create Dedicated Bearer parameters.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-profile_name)

Syntax Description **eps-fallback cbr delay** *delay_period* **max-retry** *max_retry* **timeout** *timeout_interval*

max-retry *max_retry*

Specify the Create Dedicated Bearer maximum retry count.

Must be an integer in the range of 0-10.

Default Value: 0.

timeout *timeout_interval*

Specify the Create Dedicated Bearer Retry interval in seconds.

Must be an integer in the range of 1-3.

Default Value: 1.

delay *period*

Specify the Create Dedicated Bearer delay time in milliseconds.

Must be an integer in the range of 0-10000.

Default Value: 0.

Usage Guidelines Use this command to configure Create Dedicated Bearer parameters.

profile access eps-fallback guard

Configures handling EPS fallback expiry.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-*profile_name*)

Syntax Description **eps-fallback guard timeout** *eps_fallback_timer*

eps_fallback_timer

Specify the EPS fallback guard timer in milliseconds.

Must be an integer in the range of 500-15000.

Default Value: 10000.

Usage Guidelines Use this command to configure handling EPS fallback expiry.

profile access erir

Configures the ERIR parameters.

Command Modes Exec > Global Configuration (config) > Access Profile Configuration (config-access-*profile_name*)

Syntax Description **erir delay** *erir_delay*

delay *erir_delay*

Specify the ERIR delay duration in milliseconds.

Must be an integer in the range of 0-3000.

Default Value: 0.

Usage Guidelines Use this command to configure the ERIR parameters.

profile access gtpc

Configures the GTPC Failure Handling profile.

Command Modes Exec > Global Configuration

Syntax Description **gtpc gtpc-failure-profile** *profile_name*

gtpc-failure-profile *profile_name*

Specify the GTPC Failure Handling profile name.

Must be a string.

Usage Guidelines Use this command to configure the GTPC Failure Handling profile.

profile access n1 t3591-pdu-mod-cmd

Configures the n1 timer t3591 - PDU Session Modify Command Retransmission Timer.

Command Modes Exec > Global Configuration

Syntax Description **t3591-pdu-mod-cmd**{ **timeout** *timeout_period* | **max-retry** *max_retries* }

max-retry *max_retries*

Specify the PDU Modify Command maximum retry count.

Must be an integer in the range of 0-10.

Default Value: 2.

timeout *timeout_period*

Specify the PDU Modify Command timer in seconds.

Must be an integer in the range of 1-16.

Default Value: 2.

Usage Guidelines Use this command to configure the n1 timer t3591 - PDU Session Modify Command Retransmission Timer.

profile access n1 t3592-pdu-rel-cmd

Configures the n1 timer t3592 - PDU Sess Rel Command retransmission timer for cause 39 - retransmission required.

Command Modes Exec > Global Configuration

Syntax Description `t3592-pdu-rel-cmd{ timeout timeout | max-retry max_retry }`

max-retry *max_retry*

Specify the PDU Release Command Max Retry Count.

Must be an integer in the range of 0-10.

Default Value: 4.

timeout *timeout*

Specify the PDU Release Command timer in seconds for cause 39.

Must be an integer in the range of 1-16.

Default Value: 4.

Usage Guidelines Use this command to configure the n1 timer t3592 - PDU Sess Rel Command retransmission timer for cause 39 - retransmission required.

profile access n11

Configures the N11 interface.

Command Modes Exec > Global Configuration

Syntax Description `n11 n11-failure-profile n11_failure_profile`

n11-failure-profile *n11_failure_profile*

Specify the n11 failure profile.

Must be a string.

Usage Guidelines Use this command to configure the N11 interface.

profile access n2 idft

Configures n2 indirect forwarding tunnel support.

Command Modes Exec > Global Configuration

Syntax Description `idft{ enable | timeout idft_timeout }`

enable

Specify to enable IDFT support.

timeout *idft_timeout*

Specify the IDFT timeout period in seconds.

Must be an integer in the range of 15-60.

Usage Guidelines Use this command to configure n2 indirect forwarding tunnel support.

profile access n26 idft

Configures n2 indirect forwarding tunnel support.

Command Modes Exec > Global Configuration

Syntax Description `idft{ enable | timeout idft_timeout }`

enable

Specify to enable IDFT support.

timeout *idft_timeout*

Specify the IDFT timeout period in seconds.

Must be an integer in the range of 15-60.

Usage Guidelines Use this command to configure n2 indirect forwarding tunnel support.

profile charging

Configures the charging profile.

Command Modes Exec > Global Configuration

Syntax Description `profile charging profile_name`

max-charging-condition *max_changes*

Specify the maximum number of charging condition changes.

Must be an integer in the range of 0-500.

Default Value: 20.

max-deferred-urr *max_deferred_urr*

Specify the maximum number of deferred USU containers.

Must be an integer in the range of 1-200.

Default Value: 50.

max-secondary-rat-reports *max_secondary_rat_reports*

Specify the maximum number of secondaryRatDataUsageReports to trigger CHF update.

Must be an integer in the range of 0-50.

Default Value: 0.

metering-method *metering_method*

Specify the parameters to be metered.

Must be one of the following:

- **duration-volume**
- **duration**
- **volume**

Default Value: duration-volume.

method *charging_method*

Specify the charging method. Default Value: offline.

Must be one of the following:

- **none**
- **offline**
- **online**

offline-interim-timer *timer_duration*

Specify the offline interim timer duration in seconds.

Must be an integer.

Default Value: 60.

ooo-retry-interval *ooo_report_retry_interval*

Specify the interval, in milliseconds, at which OOO report will be retried.

Must be an integer in the range of 5-5000.

tight-interworking-mode{ *false* | *true* }

Specify to enable or disable tight interworking mode for online/offline charging methods.

Must be one of the following:

- **false**
- **true**

Default Value: false.

profile_name

Specify the charging profile configuration.

Must be a string.

Usage Guidelines Use this command to configure the charging profile.
You can configure a maximum of five elements with this command.

profile charging accounting limit

Configures the duration threshold for accounting.

Command Modes Exec > Global Configuration

Syntax Description `accounting limit duration threshold`

duration threshold

Specify the duration threshold for accounting.

Must be an integer in the range of 0-2147483647.

Usage Guidelines Use this command to configure the duration threshold for accounting.

profile charging accounting limit volume

Configures the volume threshold for accounting.

Command Modes Exec > Global Configuration

Syntax Description `accounting limit volume{ downlink downlink_volume_limit | total total_volume_limit
| uplink uplink_volume_limit }`

downlink downlink_volume_limit

Specify the downlink volume limit in bytes for interim generation.

Must be an integer in the range of 100000-4000000000.

total total_volume_limit

Specify the total volume limit in bytes for interim generation.

Must be an integer in the range of 100000-4000000000.

uplink uplink_volume_limit

Specify the uplink volume limit in bytes for interim generation.

Must be an integer in the range of 100000-4000000000.

Usage Guidelines Use this command to configure the volume threshold for accounting.

profile charging limit

Configures the duration and volume thresholds.

Command Modes Exec > Global Configuration > Charging Profile Configuration

Syntax Description **limit** *options*

duration *duration_threshold*

Specify the duration threshold for charging.

Must be an integer in the range of 60-40000000.

volume *volume_threshold*

Specify the volume threshold for charging.

Must be an integer in the range of 10000-4000000000.

Usage Guidelines Use this command to configure the duration and volume thresholds.

profile charging limit rating-group

Configures the rating group volume and duration thresholds.

Command Modes Exec > Global Configuration > Charging Profile Configuration

Syntax Description **limit rating-group**{ **duration** *duration_threshold* | **volume** *volume_threshold* }

duration *duration_threshold*

Specify the duration threshold for charging.

Must be an integer in the range of 60-40000000.

volume *volume_threshold*

Specify the volume threshold for charging.

Must be an integer in the range of 10000-4000000000.

Usage Guidelines Use this command to configure the rating group duration and volume thresholds.

profile charging offline zero-usage

Configures offline charging zero-usage parameters.

Command Modes Exec > Global Configuration

Syntax Description **offline zero-usage****drop *suppress_for_zero_usage***

Specify the parameters to suppress for zero usage.

Must be one of the following:

- **cdr**
- **uuc**

measurement *parameters_to_suppress*

Specify the parameters to be suppressed.

Must be one of the following:

- **duration**
- **volume**

trigger *triggers_to_suppress*

Specify the list of triggers to be suppressed.

Must be one of the following:

- **external**
- **final**
- **internal**

Usage Guidelines Use this command to configure offline charging zero-usage parameters.

profile charging quota

Configures the charging quota parameters.

Command Modes Exec > Global Configuration

Syntax Description **quota request** *request_quota***request *request_quota***

Specify the request quota from CHF.

Must be one of the following:

- **always**
- **standard**

Default Value: standard.

Usage Guidelines Use this command to configure the charging quota parameters.

profile charging quota suppress

Configures the list of triggers to be suppressed.

Command Modes Exec > Global Configuration

Syntax Description `suppress triggers triggers_to_suppress`

triggers *triggers_to_suppress*

Specify the list of triggers to be suppressed.

Must be one of the following:

- **qht**

Usage Guidelines Use this command to configure the list of triggers to be suppressed.

profile charging reporting-level

Configures the usage reporting level to be used if not sent by the PCF.

Command Modes Exec > Global Configuration > Charging Profile Configuration

Syntax Description `reporting-level{ online reporting_level | offline reporting_level }`

offline reporting_level

Specify the reporting level configuration for offline.

Must be one of the following:

- **rating-group**
- **service-id**

Default Value: rating-group.

online reporting_level

Specify the reporting level configuration for online.

Must be one of the following:

- **rating-group**
- **service-id**

Default Value: rating-group.

Usage Guidelines Use this command to configure the usage reporting level to be used if not sent by the PCF.

profile charging requested-service-unit

Configures the Requested Service Unit time parameter.

Command Modes Exec > Global Configuration > Charging Profile Configuration

Syntax Description `requested-service-unit time rsu_time`

time *rsu_time*

Specify the Requested Service Unit time value in seconds.

Must be an integer in the range of 1-4000000000.

Usage Guidelines Use this command to configure the Requested Service Unit time parameter.

profile charging requested-service-unit volume

Configures the Requested Service Unit volume parameters.

Command Modes Exec > Global Configuration > Charging Profile Configuration

Syntax Description `requested-service-unit volume{ uplink uplink_volume | downlink downlink_volume
| total total_volume }`

downlink *downlink_volume*

Specify the downlink volume in bytes.

Must be an integer in the range of 1-4000000000.

total *total_volume*

Specify the total volume in bytes.

Must be an integer in the range of 1-4000000000.

uplink *uplink_volume*

Specify the uplink volume in bytes.

Must be an integer in the range of 1-4000000000.

Usage Guidelines Use this command to configure the Requested Service Unit volume parameters.

profile charging tariff-time-change

Configures timestamps for tariff-time change.

Command Modes	Exec > Global Configuration
Syntax Description	<p>tariff-time-change [hour <i>hour</i> minute <i>minute</i>]</p> <p>hour <i>hour</i></p> <p>Specify the hour timestamp for tariff-time change. Must be an integer in the range of 0-23.</p> <p>minute <i>minute</i></p> <p>Specify the minute timestamp for tariff-time change. Must be an integer in the range of 0-59.</p>
Usage Guidelines	Use this command to configure timestamps for tariff-time change.

profile charging triggers

Configures the list of triggers.

Command Modes	Exec > Global Configuration > Charging Profile Configuration
Syntax Description	<p>triggers session <i>trigger</i></p>

session *trigger*

Specify the list of session-level triggers.

Must be one of the following:

- **3gpp-ps-change**
- **ambr-change**
- **max-number-of-changes-in-charging-conditions**
- **plmn-change**
- **qos-change**
- **rat-change**
- **serv-node-change**
- **tarrif-time-change**
- **ue-pra-change**
- **ue-time-change**
- **upf-add**
- **upf-rem**
- **user-loc-change**

Usage Guidelines Use this command to configure the list of triggers.

profile charging-characteristics

Configures the charging characteristics profile.

Command Modes Exec > Global Configuration

Syntax Description **charging-characteristics** *cc_profile_name* [**charging-profile** *charging_profile_name*]

charging-profile *charging_profile_name*

Specify the charging profile name.

Must be a string.

cc_profile_name

Specify the charging characteristics profile name. For example, 1, 2, 3, 12, 14, till 16.

Must be a string.

Usage Guidelines Use this command to configure the charging characteristics profile.

profile charging-characteristics network-element-profile-list

Configures the network elements profile list.

Command Modes Exec > Global Configuration > Charging Characteristics Profile Configuration

Syntax Description **network-element-profile-list** **chf** *charging_server*

chf *charging_server*

Specify the list of charging servers.

Must be a string.

Usage Guidelines Use this command to configure the network elements profile list.

profile compliance

Configures 3GPP compliance configuration.

Command Modes Exec > Global Configuration > Profile Configuration

Syntax Description **profile compliance** *profile_name*

profile_name

Specify the compliance profile name.

Must be a string.

Usage Guidelines Use this command to configure the 3GPP compliance configuration.

profile compliance service

Configures the SMF service names. The service names are specified in 3GPPTS 29.510 V15.2.0, Section 6.1.6.3.11.

Command Modes Exec > Global Configuration > Profile Configuration

Syntax Description **service** *service_name*

service_name

Specify the service names.

Must be one of the following:

- **n1**
- **n2**
- **namf-comm**
- **nchf-convergedcharging**
- **nnrf-disc**
- **nnrf-nfm**
- **npcf-smpolicycontrol**
- **nsmf-pdusession**
- **nudm-sdm**
- **nudm-uecm**
- **threegpp23502**

Usage Guidelines Use this command to configure the SMF service names.

profile compliance service n1-version

Configures the 3GPP n1 specification version number.

Command Modes Exec > Global Configuration

Syntax Description **n1-version spec** *3gpp_spec_version*

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string.

spec *3gpp_spec_version*

Specify the 3GPP n1 specification version number.

Must be one of the following:

- 15.2.0
- 15.4.0

Default Value: "15.2.0".

uri *version_uri*

Specify the version URI.

Must be a string.

Usage Guidelines

Use this command to configure the 3GPP n1 specification version number.

profile compliance service n2-version

Configures the 3GPP n2 service specification version number.

Command Modes

Exec > Global Configuration > Compliance Profile Configuration

Syntax Description

```
n2-version{ full full_version | spec 3gpp_spec_version | uri version_uri }
```

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string.

spec *3gpp_spec_version*

Specify the 3GPP n2 service specification version number.

Must be one of the following:

- 15.0.0
- 15.2.0
- 15.4.0

Default Value: "15.0.0".

uri *version_uri*

Specify the version URI.

Must be a string.

Usage Guidelines Use this command to configure the 3GPP n2 service specification version number.

profile compliance service namf-version

Configures the 3GPP namf-comm specification version number.

Command Modes Exec > Global Configuration > Compliance Profile Configuration

Syntax Description `service namf-comm version{ full full_version | spec 3gpp_spec_version | uri version_uri }`

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string.

spec *3gpp_spec_version*

Specify the 3GPP namf-comm specification version number.

Must be one of the following:

- 15.0.0
- 15.2.0
- 15.4.0

Default Value: "15.0.0".

uri *version_uri*

Specify the version URI.

Must be a string.

Usage Guidelines Use this command to configure the 3GPP namf-comm specification version number.

profile compliance service nchf-version

Configures the 3GPP nchf-convergedcharging service specification version number.

Command Modes Exec > Global Configuration > Compliance Profile Configuration

Syntax Description `service nchf-convergedcharging version{ full full_version | spec 3gpp_spec_version | uri version_uri }`

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string.

spec *3gpp_spec_version*

Specify the 3GPP nchf-convergedcharging service specification version number.

Must be one of the following:

- 15.0.0
- 15.1.0
- 15.2.1
- 15.3.0.std
- 15.3.0

Default Value: "15.0.0".

uri *version_uri*

Specify the version URI.

Must be a string.

Usage Guidelines

Use this command to configure the 3GPP nchf-convergedcharging service specification version number.

profile compliance service nrf-disc-version

Configures the 3gpp nrf-disc service specification version number.

Command Modes

Exec > Global Configuration > Compliance Profile Configuration

Syntax Description

```
service nrf-disc version{ full full_version | spec 3gpp_spec_version | uri version_uri }
```

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string.

spec *3gpp_spec_version*

Specify the 3gpp nrf-disc service specification version number.

Must be one of the following:

- 15.0.0
- 15.2.0

- 15.4.0

Default Value: "15.2.0".

uri version_uri

Specify the version URI.

Must be a string.

Usage Guidelines Use this command to configure the 3GPP nrf-disc service specification version number.

profile compliance service nrf-nfm-version

Configures the 3GPP nrf-nfm service specification version number.

Command Modes Exec > Global Configuration > Compliance Profile Configuration

Syntax Description `service nrf-nfm version{ full full_version | spec 3gpp_spec_version | uri version_uri }`

full full_version

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string.

spec 3gpp_spec_version

Specify the 3GPP nrf-nfm service specification version number.

Must be one of the following:

- 15.0.0
- 15.2.0
- 15.4.0

Default Value: "15.2.0".

uri version_uri

Specify the version URI.

Must be a string.

Usage Guidelines Use this command to configure the 3GPP nrf-nfm service specification version number.

profile compliance service npcfc-version

Configures the 3GPP npcfc-smpolicycontrol service specification version number.

Command Modes

Exec > Global Configuration > Compliance Profile Configuration

Syntax Description

```
version npcf-smpolicycontrol version{ full full_version | spec 3gpp_spec_version | uri version_uri }
```

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.
Must be a string.

spec *3gpp_spec_version*

Specify the 3GPP npcf-smpolicycontrol service specification version number.
Must be one of the following:

- 15.0.0
- 15.2.0
- 15.4.0

Default Value: "15.2.0".

uri *version_uri*

Specify the version URI.
Must be a string.

Usage Guidelines

Use this command to configure the 3GPP npcf-smpolicycontrol service specification version number.

profile compliance service nsmf-version

Configures the 3GPP nsmf-pdusession specification version number.

Command Modes

Exec > Global Configuration > Compliance Profile configuration

Syntax Description

```
service nsmf-version{ full full_version | spec 3gpp_spec_version | uri version_uri }
```

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.
Must be a string.

spec *3gpp_spec_version*

Specify the 3GPP nsmf-pdusession specification version number.
Must be one of the following:

- 15.0.0

- 15.2.0
- 15.4.0

Default Value: "15.0.0".

uri version_uri

Specify the version URI.

Must be a string.

Usage Guidelines

Use this command to configure the 3GPP nsmf-pdusession specification version number.

profile compliance service nudm-sdm-version

Configures the 3GPP nudm-sdm service specification version number.

Command Modes

Exec > Global Configuration > Compliance Profile Configuration

Syntax Description

service nudm-sdm version{ **full** *full_version* | **spec** *3gpp_spec_version* | **uri** *version_uri* }

full full_version

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.

Must be a string.

spec 3gpp_spec_version

Specify the 3GPP nudm-sdm service specification version number.

Must be one of the following:

- 15.1.0
- 15.2.1
- 15.4.0

Default Value: "15.2.1".

uri version_uri

Specify the version URI.

Must be a string.

Usage Guidelines

Use this command to configure the 3GPP nudm-sdm service specification version number.

profile compliance service nudm-uecm-version

Configures the 3GPP nudm-uecm service specification version number.

Command Modes Exec > Global Configuration > Compliance Profile Configuration

Syntax Description `service nudm-uecm version{ full full_version | spec 3gpp_spec_version | uri version_uri }`

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.
Must be a string.

spec *3gpp_spec_version*

Specify the 3GPP nudm-uecm service specification version number.
Must be one of the following:

- 15.1.0
- 15.2.1
- 15.4.0

Default Value: "15.2.1".

uri *version_uri*

Specify the version URI.
Must be a string.

Usage Guidelines Use this command to configure the 3GPP nudm-uecm service specification version number.

profile compliance service threegpp23502-version

Configures the 3GPP 23.502 Stage-2 5GS specification version number.

Command Modes Exec > Global Configuration > Compliance Profile Configuration

Syntax Description `service threegpp23502 version{ full full_version | spec 3gpp_spec_version | uri version_uri }`

full *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*.
Must be a string.

spec 3gpp_spec_version

Specify the 3GPP 23.502 Stage-2 5GS specification version number.

Must be one of the following:

- 15.4.0
- 15.6.0

Default Value: "15.4.0".

uri version_uri

Specify the version URI.

Must be a string.

Usage Guidelines

Use this command to configure the 3GPP 23.502 Stage-2 5GS specification version number.

profile content-filtering category database

Configures the Content Filtering database parameter.

Command Modes

Exec > Global Configuration

Syntax Description

profile content-filtering category database max-versions *max_versions*

max-versions *max_versions*

Specify the maximum number of Content-Filtering database versions.

Must be an integer in the range of 1-3.

Usage Guidelines

Use this command to configure the Content Filtering database parameter.

profile content-filtering category database directory

Configures the Content Filtering database directory parameter.

Command Modes

Exec > Global Configuration

Syntax Description

profile content-filtering category database directory path *cf_directory_path*

path *cf_directory_path*

Specify the Content-Filtering directory path.

Must be a string.

Usage Guidelines

Use this command to configure the Content Filtering database directory parameter.

profile dnn

Configures DNN profile.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile dnn [always-on{ false | true } | charging-profile profile_name | dcnr{ false | true } | dnn-selection-mode dnn_selection_mode | dnn profile_name | emergency{ false | true } | mode dnn_mode | only-nr-capable-ue{ false | true } | pcc-ue-rule-precedence-mapping{ false | true } | pcscf-profile profile_name | ppd-profile profile_name | presence-reporting{ false | true } | qci-qos-profile qci_qos_profile | qos-profile profile_name | upf-selection-policy upf_selection_policy | userplane-inactivity-timer timeout_period | virtual-mac mac_address | wps-profile profile_name]`

always-on{ false | true }

Specify to enable or disable Always On PDU session.

Must be one of the following:

- false
- true

Default Value: false.

charging-profile *profile_name*

Specify the charging profile name.

Must be a string.

dcnr{ false | true }

Specify to enable or disable support for dual connectivity with new radio.

Must be one of the following:

- false
- true

Default Value: false.

dnn-selection-mode *dnn_selection_mode*

Specify the selection mode for subscription. The default mode is "verified".

Must be one of the following:

- network-provided
- ue-provided
- verified

dnn profile_name

Specify the DNN profile name.

Must be a string.

emergency{ false | true }

Specify whether the DNN is emergency DNN or not.

Must be one of the following:

- **false**
- **true**

Default Value: false.

mode dnn_mode

Specify the DNN mode of operation.

Must be one of the following:

- **offline**: Offline. DNN in offline mode, new sessions are rejected.

only-nr-capable-ue{ false | true }

Specify whether to allow only 5G capable UE, and reject calls from non-5G capable UE.

Must be one of the following:

- **false**
- **true**

Default Value: false.

pcc-ue-rule-precedence-mapping{ false | true }

Specify whether to map PCC rule precedence to SMF-assigned TFT and auth rule precedence values. If disabled, values sent by PCF are used.

Must be one of the following:

- **false**
- **true**

Default Value: true.

pcscf-profile profile_name

Specify the P-CSCF profile association.

Must be a string.

ppd-profile *profile_name*

Specify the Paging-Policy differentiation.

Must be a string.

presence-reporting{ *false* | *true* }

Specify whether to enable or disable presence reporting for this DNN.

Must be one of the following:

- **false**
- **true**

Default Value: false.

qci-qos-profile *qci_qos_profile*

Specify the QCI QoS Profile configuration related to QCI to QoS mapping.

Must be a string.

qos-profile *qos_profile*

Specify the QoS Profile configuration.

Must be a string.

upf-selection-policy *upf_selection_policy*

Specify the UPF selection policy specific configuration.

Must be a string.

userplane-inactivity-timer *timeout_period*

Specify the user plane inactivity timer in seconds.

Must be an integer in the range of 0-86400.

Default Value: 0.

virtual-mac *mac_address*

Specify the remote virtual MAC address used to generate interface ID for UE.

Must be a string.

Default Value: "00:14:22:01:23:45".

wps-profile *profile_name*

Specify the Wireless Priority Service (WPS).

Must be a string.

Usage Guidelines Use this command to configure the DNN profile. The CLI prompt changes to the DNN Profile Configuration mode.

profile dnn accounting

Configures accounting parameters.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-*dnn_profile_name*)

Syntax Description **accounting server-group** *radius_server_group_name*

server-group *radius_server_group_name*

Specify the RADIUS server group name.

Must be a string.

Usage Guidelines Use this command to configure the accounting parameters.

profile dnn authentication algorithm

Configures the authentication algorithm.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-*dnn_profile_name*)

Syntax Description **authentication algorithm**{ **chap** *chap_preference* | **convert-to-mschap** | **mschap** *mschap_preference* | **pap** *pap_preference* | **password-use-pco** }

chap *chap_preference*

Specify the Challenge Handshake Authentication Protocol (CHAP) and preference. Lower value means higher preference. To disable, set it to 0.

Must be an integer in the range of 0-3.

Default Value: 0.

convert-to-mschap

Specify conversion of CHAP to MSCHAP when CHAP response length is 49 bytes.

mschap *mschap_preference*

Specify the Microsoft Challenge Handshake Authentication Protocol (MS-CHAP) and preference. Lower value means higher preference. To disable, set it to 0.

Must be an integer in the range of 0-3.

Default Value: 0.

pap pap_preference

Specify the Password Authentication Protocol (PAP) and preference. Lower value means higher preference. To disable, set it to 0.

Must be an integer in the range of 0-3.

Default Value: 0.

password-use-pco

Specify to override password with PCO password.

Usage Guidelines Use this command to configure the authentication algorithm.

profile dnn authentication secondary

Configures the secondary authentication method.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-dnn_profile_name)

Syntax Description **authentication secondary radius group** *radius_server_group_name*

group radius_server_group_name

Specify to RADIUS server group name.

Must be a string.

radius

Specify to use RADIUS as secondary authentication method.

Usage Guidelines Use this command to configure the secondary authentication method.

profile dnn authorization

Configures the authorization method.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-dnn_profile_name)

Syntax Description **authorization local** [**rat-type** *rat_type*]

local

Specify to use local policy configuration.

rat-type rat_type

Specify the RAT types.

Must be one of the following:

- **eutra**
- **nr**
- **wlan**

Usage Guidelines Use this command to configure the authorization method.

profile dnn dnn

Configures a Virtual DNN profile under a DNN profile and NF user list.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-dnn_profile_name)

Syntax Description **dnn** profile_name **network-function-list** network_function_list

Usage Guidelines Use this command to configure a DNN profile that is used to map a UE-requested DNN to a Virtual DNN. The SMF sends "Mapped" DNNs for configured network functions and "UE-requested" DNNs for other network functions. The UE-requested DNN is always sent on the N1 interface.

Example

The following command configures a DNN profile named "testdnn" and the network interface as "upf":

```
dnn testdnn network-function-list upf
```

profile dnn dnn nw-fu-conf

Configures network function parameters.

Syntax Description **nw-fu-conf**{ **nwfunc-dnn** dnn_name | **network-function-list** nf_list }

network-function-list nf_list

Specify the list of network functions that the selected DNN profile will be sent. The list of network functions supported are CHF, PCF, and UPF.

Must be a string.

nwfunc-dnn dnn_name

Specify the DNN name.

Must be a string.

Usage Guidelines Use this command to configure the network function parameters.

profile dnn dnn rmgr-conf

Configures the RMGR parameters.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-dnn_profile_name)

Syntax Description **dnn rmgr** *rmgr_nf*

rmgr_nf

Specify the RMGR Network Function.

Must be a string.

Usage Guidelines Use this command to configure the RMGR parameters.

profile dnn dns primary

Configures the primary DNS server details.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-dnn_profile_name)

Syntax Description **dns primary**{ **ipv4** *ipv4_address* | **ipv6** *ipv6_address* }

ipv4 ipv4_address

Specify the primary DNS server's IPv4 address.

ipv6 ipv6_address

Specify the primary DNS server's IPv6 address.

Usage Guidelines Use this command to configure the primary DNS server details.

profile dnn dns secondary

Configures the secondary DNS server details.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-dnn_profile_name)

Syntax Description **dns secondary**{ **ipv4** *ipv4_address* | **ipv6** *ipv6_address* }

ipv4 ipv4_address

Specify the secondary DNS server's IPv4 address.

ipv6 ipv6_address

Specify the secondary DNS server's IPv6 address.

Usage Guidelines

Use this command to configure the secondary DNS server details.

profile dnn network-element-profiles

Configures network element profiles.

Command Modes

Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-*dnn_profile_name*)

Syntax Description

```
profile dnn dnn_name network-element-profiles{ amf | chf | pcf | udm }
profile_name
```

amf profile_name

Specify the AMF network element profile name. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

chf profile_name

Specify the CHF network element profile name. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

pcf profile_name

Specify the PCF network element profile name. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

udm profile_name

Specify the UDM network element profile name. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

Must be a string.

Usage Guidelines

Use this command to configure network element profiles. Changing the current profile name may impact existing calls. Requires DNN in offline mode.

profile dnn nssai

Configures the default NSSAI configuration.

Command Modes

Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-*dnn_profile_name*)

Syntax Description `nssai{ [sd slice_differentiator] [sst slice/service_type] }`

sd slice_differentiator

Specify the S-NSSAI Slice Differentiator (SD).

Must be a string.

sst slice/service_type

Specify the S-NSSAI Slice/Service Type (SST).

Must be an integer in the range of 0-255.

Usage Guidelines Use this command to configure the default NSSAI configuration.

profile dnn outbound

Configures DNN host password for PPP session authentication.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-dnn_profile_name)

Syntax Description `outbound password dnn_host_password`

password dnn_host_password

Specify the DNN host password.

Usage Guidelines Use this command to configure designating the DNN host password for PPP session authentication.

profile dnn primary-plmn

Configures the primary PLMN configuration.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-dnn_profile_name)

Syntax Description `primary-plmn{ [mcc mobile_country_code] [mnc mobile_network_code] }`

mcc mobile_country_code

Specify the 3-digit Mobile Country Code.

Must be a string.

mnc mobile_network_code

Specify the 2- or 3-digit Mobile Country Network.

Must be a string.

Usage Guidelines Use this command to configure the primary PLMN configuration.

profile dnn session type

Configures the PDU session type.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-*dnn_profile_name*)

Syntax Description **session type** *default_session_type* [**allowed** *allowed_session_type*]

allowed *allowed_session_type*

Specify the SMF allowed session types. Up to two allowed session types can be configured in addition to the default session type. The same session type cannot be configured both as allowed and default.

Must be one of the following:

- **IPV4**
- **IPV4V6**
- **IPV6**

type *default_session_type*

Specify the default session type.

Must be one of the following:

- **IPV4**
- **IPV4V6**
- **IPV6**

Usage Guidelines Use this command to configure the PDU session type.

You can configure a maximum of two elements with this command.

profile dnn ssc-mode

Configures Session and Service Continuity (SSC) Mode parameters.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-*dnn_profile_name*)

Syntax Description **ssc-mode** *default_ssc_mode* [**allowed** *allowed_ssc_mode*]

allowed *allowed_ssc_mode*

Specify the allowed SSC Modes. Up to two allowed modes can be configured in addition to the default SSC mode. The same SSC mode cannot be configured both as allowed and default.

Must be one of the following:

- **1**

- 2
- 3

default_ssc_mode

Specify the default SSC mode.

Must be one of the following:

- 1
- 2
- 3

Usage Guidelines

Use this command to configure SSC mode parameters.

You can configure a maximum of two elements with this command.

profile dnn timeout

Configures session time-to-live (TTL) configuration.

Command Modes

Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-dnn_profile_name)

Syntax Description

```
timeout{ [ absolute max_duration ] [ cp-idle cp_idle_duration ] [
default-flow-only default_flow_only_duration ] [ up-idle up_idle_duration ] }
```

absolute max_session_duration

Specify the maximum duration of the session in seconds, before the system automatically terminates the session. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-2147483647.

Default Value: 0.

cp-idle cp_idle_duration

Specify the maximum duration after a 5G session has moved to idle (controlplane) state, before the system automatically terminates it. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-2147483647.

Default Value: 0.

default-flow-only default_flow_only_duration

Specify the maximum allowed duration for a PDU/PDN session to be in idle state, after which the system automatically terminates it. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-604800000.

Default Value: 0.

up-idle *up_idle_duration*

Specify the maximum duration after a 5G session has moved to idle (userplane) state, before the system automatically terminates it. Value 0 indicates the function is disabled.

Must be an integer in the range of 0-2147483647.

Default Value: 0.

Usage Guidelines Use this command to configure session time-to-live (TTL) configuration.

profile dnn upf

Configures the UPF APN profile.

Command Modes Exec > Global Configuration (config) DNN Profile Configuration (config-dnn-*dnn_profile_name*)

Syntax Description **upf** **apn** *apn_name*

apn *apn_name*

Specify the APN name.

Must be a string.

Usage Guidelines Use this command to configure the UPF APN profile.

profile dns-proxy

Configures DNS proxy profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile dns-proxy** [**cache-ttl** *t1* | **query-type** *query_type* | **randomize-answers** | **round-robin-answers** | **timeout** *dns_timeout*]

cache-ttl *t1*

Specify the TTL value of DNS responses in cache, in seconds.

Must be an integer in the range of 60-86400.

query-type *query_type*

Specify the DNS query type.

Must be one of the following:

- **ipv4-ipv6**
- **ipv4**
- **ipv6**

Default Value: ipv4.

randomize-answers

Specify to enable randomizing address fetch.

round-robin-answers

Specify to enable round-robin address fetch.

timeout *dns_timeout*

Specify the DNS timeout.

Must be an integer.

Default Value: 500.

Usage Guidelines Use this command to enable and configure DNS proxy parameters.

profile dns-proxy servers

Configures DNS server parameters.

Command Modes Exec > Global Configuration (config)

Command Modes Exec > Global Configuration (config) > DNS Proxy Configuration (config-dns-proxy)

Syntax Description **servers** *dns_server_name* [**ip** *ip_address* | **port** *port_number* | **protocol** *protocol* | **priority** *priority*]

ip *ip_address*

Specify the IP address of the DNS server.

port *port_number*

Specify the port number of the DNS server.

Must be an integer in the range of 1-65535.

priority *priority*

Specify the priority for the DNS server.

Must be an integer in the range of 1-100.

protocol *protocol*

Specify the protocol type for the DNS server.

Must be one of the following:

- tcp

- **udp**

Default Value: tcp.

dns_server_name

Specify the name of the DNS server.

Must be a string.

Usage Guidelines Use this command to configure the DNS server parameters.

profile ecgi-group

Configures ECGI Group profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile ecgi-group** *profile_name*

profile_name

Specify the ECGI Group profile name.

Must be a string.

Usage Guidelines Use this command to configure ECGI Group profile parameters.

profile ecgi-group ecgis

Configures the list of MCC, MNC, TAC, and ECGI groups.

Command Modes Exec > Global Configuration (config) > ECGI Group Configuration (config-ecgi-group-*ecgi_group_profile_name*)

Syntax Description **ecgis**{ **mcc** *mobile_country_code* **mnc** *mobile_network_code* }

mcc mobile_country_code

Specify the Mobile Country Code (MCC).

Must be a string.

mnc mobile_network_code

Specify the Mobile Network Code (MNC).

Must be a string.

Usage Guidelines Use this command to configure the list of MCC, MNC, TAC, and ECGI groups. You can configure a maximum of 16 elements with this command.

profile ecgi-group ecgis ecgi

Configures ECGI group parameters.

Command Modes Exec > Global Configuration (config) > ECGI Group Configuration
(config-ecgi-group-*ecgi_group_profile_name*) > ECGI Group MCC MNC Configuration
(config-ecgi-group-*<mcc/mnc>*)

Syntax Description **ecgi list** *ecgi_values*

ecgi_values

Specify the list of ECGI values - 7 digit hex string Eutra Cell ID. For example, A12345f.

Must be a string.

Usage Guidelines Use this command to configure ECGI group parameters.

You can configure a maximum of 64 elements with this command.

profile ecgi-group ecgis ecgi range

Configures ECGI range.

Command Modes Exec > Global Configuration (config) > ECGI Group Configuration
(config-ecgi-group-*ecgi_group_profile_name*) > ECGI Group MCC MNC Configuration
(config-ecgi-group-*<mcc/mnc>*)

Syntax Description **ecgi range start** *ecgi_range_start* **end** *ecgi_range_end*

end ecgi_range_end

Specify the ECGI range end value.

Must be a string.

start ecgi_range_start

Specify the ECGI range start value.

Must be a string.

Usage Guidelines Use this command to configure an ECGI range.

You can configure a maximum of 64 elements with this command.

profile emergency-profile

Configures the Emergency Profile configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile emergency-profile** *emergency_profile_name* **udm-profile** *udm_profile_name*

udm-profile *udm_profile_name*

Specify the UDM profile name.

Must be a string.

emergency_profile_name

Specify the emergency profile name.

Must be a string.

Usage Guidelines Use this command to configure the Emergency Profile configuration.

profile failure-handling

Configures the Failure Handling profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile failure-handling** *profile_name*

profile_name

Specify the Failure Handling profile name.

Must be a string.

Usage Guidelines Use this command to configure the Failure Handling profile.

profile failure-handling interface gtpc message

Configures GTPC failure-handling template message types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*failure_handling_profile_name*)

Syntax Description **interface gtpc message** *gtpc_message_type*

gtpc_message_type

Specify the GTPC message type.

Must be one of the following:

- **S5S8CreateBearerReq**
- **S5S8DeleteBearerReq**

- S5S8UpdateBearerReq

Usage Guidelines Use this command to configure GTPC failure-handling template message types.

profile failure-handling interface gtpc message cause-code-type cause-code

Configures GTPC interface cause code types.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*failure_handling_profile_name*) > GTPC Message Configuration (config-message-*gtpc_message_type*)

Syntax Description **cause-code** *gtpc_cause_code_type*

gtpc_cause_code_type

Specify the GTPC cause code type.

Must be one of the following:

- temp-fail

Usage Guidelines Use this command to configure GTPC interface cause code types.

profile failure-handling interface gtpc message cause-code-type cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration (config) > Failure Handling Profile Configuration (config-failure-handling-*failure_handling_profile_name*) > GTPC Message Configuration (config-message-*gtpc_message_type*) > Cause Code Configuration (config-cause-code-*cause_code*)

Syntax Description **action** *action_type* [**timeout** *retry_interval* | **max-retry** *max_retry*]

max-retry max_retry

Specify the maximum retry count.

Must be an integer in the range of 0-5.

Default Value: 1.

timeout retry_interval

Specify the retry interval in milliseconds.

Must be an integer in the range of 1000-5000.

Default Value: 1000.

action_type

Specify the action type for the cause.

Must be one of the following:

- **clear**
- **retry**
- **terminate**

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface n11

Configures the N11 interface - SMF/PGW-C timer for reattempting bearer creation/update.

Command Modes Exec > Global Configuration

Syntax Description **n11 message** *message_type*

Usage Guidelines Use this command to configure the N11 interface - SMF/PGW-C timer for reattempting bearer creation/update.

profile failure-handling interface n11 message

Configures N11 message types.

Command Modes Exec > Global Configuration

Syntax Description **message** *message_type*

message_type

Specify the message type.

Must be one of the following:

- **n1n2transfer**

Usage Guidelines Use this command to configure n11 message types.

profile failure-handling interface n11 message cause-code-value cause-code

Configures the n11 interface cause code types.

Command Modes Exec > Global Configuration

Syntax Description **cause-code-value cause-code** *n11_cause_code_type*

n11_cause_code_type

Specify the n11 interface cause code type.

Must be one of the following:

- **temp-reject-handover**
- **temp-reject-register**

Usage Guidelines Use this command to configure the n11 interface cause code types.

profile failure-handling interface n11 message cause-code-value cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description **action** *action_type* [**timeout** *retry_interval* | **max-retry** *max_retry*]

max-retry max_retry

Specify the maximum retry count.

Must be an integer in the range of 1-5.

Default Value: 1.

action_type

Specify the action type for the cause.

Must be one of the following:

- **clear**
- **retry**
- **terminate**

retry_interval

Specify the retry interval in milliseconds.

Must be an integer in the range of 100-5000.

Default Value: 300.

Usage Guidelines

Use this command to configure the action type for the cause.

profile failure-handling interface pfc message

Configures PFCP message types.

Command Modes

Exec > Global Configuration

Syntax Description

pfc message *pfc_message_type*

pfc_message_type

Specify the PFCP message type.

Must be one of the following:

- **N4SessionEstablishmentReq**
- **N4SessionModificationReq**
- **N4SessionReportReq**

Usage Guidelines

Use this command to configure PFCP message types.

profile failure-handling interface pfc message cause-code-type-est cause-code

Configures PFCP interface cause code types.

Command Modes

Exec > Global Configuration

Syntax Description

container cause-code-type-est cause-code *cause_code_type*

cause_code_type

Specify the cause code type.

Must be a string.

-Or-

Must be one of the following:

- **no-resource-available**

- **no-response-received**
- **pfcip-entity-in-congestion**
- **reject**
- **service-not-supported**
- **system-failure**

Usage Guidelines Use this command to configure PFCIP interface cause code types.

profile failure-handling interface pfcip message cause-code-type-est cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description **action** *action_type* [**timeout** *retry_interval* | **max-retry** *max_retry_count*]

max-retry *max_retry_count*

Specify the maximum retry count for the retry-terminate action.

Must be an integer in the range of 0-5.

Default Value: 1.

action_type

Specify the action type for the cause.

Must be one of the following:

- **retry-terminate**
- **terminate**

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface pfcip message cause-code-type-mod cause-code

Configures PFCIP interface cause code types.

Command Modes Exec > Global Configuration

Syntax Description **cause-code-type-mod** **cause-code** *pfcip_cause_code_type*

pfcf_cause_code_type

Specify the PFCF cause code type.

Must be a string.

-Or-

Must be one of the following:

- **mandatory-ie-incorrect**
- **no-resource-available**
- **no-response-received**
- **pfcf-entity-in-congestion**
- **reject**
- **session-ctx-not-found**

Usage Guidelines Use this command to configure the PFCF cause code type.

profile failure-handling interface pfcf message cause-code-type-mod cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description **action** *action_type*

action_type

Specify the action type for the cause.

Must be one of the following:

- **terminate**

Usage Guidelines Use this command to configure the action type for the cause.

profile failure-handling interface pfcf message cause-code-type-sessreport cause-code

Configures the PFCF interface cause code types.

Command Modes Exec > Global Configuration

Syntax Description **cause-code-type-sessreport** **cause-code** *cause_id*

cause_id

Specify the cause ID or a range of cause IDs separated by either hyphen (-) or comma (,) or both.

Must be a string.

Usage Guidelines

Use this command to configure the PFCPC interface cause-code types.

profile failure-handling interface pfcpc message cause-code-type-sessreport cause-code action

Configures the action type for the cause.

Command Modes

Exec > Global Configuration

Syntax Description

action *action_type*

action_type

Specify the action type for the cause.

Must be one of the following:

- **ignore**
- **terminate**

Usage Guidelines

Use this command to configure the action type for the cause.

profile failure-handling interface sxa message

Configures sxa message types.

Command Modes

Exec > Global Configuration

Syntax Description

sxa message *sxa_message_type*

sxa_message_type

Specify the SXA message type.

Must be one of the following:

- **SessionEstablishmentReq**

Usage Guidelines

Use this command to configure sxa message types.

profile failure-handling interface sxa message cause-code-type-est cause-code

Configures SXA interface cause code types.

Command Modes Exec > Global Configuration

Syntax Description **cause-code** *sxa_cause_code_type*

sxa_cause_code_type

Specify the SXA interface cause code type, or range of cause codes separated by either hyphen (-) or comma (,) or both.

Must be a string.

-Or-

Must be one of the following:

- **no-resource-available**
- **no-response-received**
- **pfc-p-entity-in-congestion**
- **reject**
- **service-not-supported**
- **system-failure**

Usage Guidelines Use this command to configure SXA interface cause code types.

profile failure-handling interface sxa message cause-code-type-est cause-code action

Configures the action type for the cause.

Command Modes Exec > Global Configuration

Syntax Description **action** *action_type* [**timeout** *retry_interval* | **max-retry** *max_retry_count*]

max-retry max_retry_count

Specify the maximum retry count for the retry-terminate action.

Must be an integer in the range of 0-5.

Default Value: 1.

action_type

Specify the action type for the cause.

Must be one of the following:

- **retry-terminate**
- **terminate**

Usage Guidelines Use this command to configure the action type for the cause.

profile icmpv6

Configuration used in ICMPv6 messages.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile icmpv6** *profile_name*

profile_name

Specify the ICMPv6 profile name.

Must be a string.

Usage Guidelines Use this command to configure the ICMPv6 profile name.

profile icmpv6 options

Configures ICMPv6 configuration parameters.

Command Modes Exec > Global Configuration (config) > ICMPv6 Profile Configuration (config-icmpv6-*profile_name*)

Syntax Description **options{ hop-limit** *hop_limit* | **mtu** *mtu_size* | **reachable-time** *reachable_period* | **retrans-timer** *retransmission_period* | **router-lifetime** *lifetime_period* | **virtual-mac** *mac_address* }

hop-limit *hop_limit*

Specify the hop limit.

Must be an integer in the range of 0-255.

Default Value: 255.

mtu *mtu_size*

Specify the Maximum Transmission Unit (MTU) size.

Must be an integer.

Default Value: 1500.

reachable-time *reachable_period*

Specify the reachable time in milliseconds.

Must be an integer.

Default Value: 0.

retrans-timer *retransmission_period*

Specify the retransmission time in milliseconds.

Must be an integer.

Default Value: 0.

router-lifetime *lifetime_period*

Specify the router lifetime in seconds.

Must be an integer in the range of 0-65535.

Default Value: 65535.

virtual-mac *mac_address*

Specify the local virtual MAC address.

Must be a string.

Usage Guidelines Use this command to configure the ICMPv6 configuration parameters.

profile location-area-group

Configures the Location Area Group profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile location-area-group** *profile_name* [**tai-group** *tai_group_name* | **ecgi-group** *ecgi_group_name* | **ncgi-group** *ncgi_group_name*]

ecgi-group *ecgi_group_name*

Specify the ECGI Group name.

Must be a string.

ncgi-group *ncgi_group_name*

Specify the NCGI Group name.

Must be a string.

tai-group *tai_group_name*

Specify the TAI group name.

Must be a string.

profile_name

Specify the Location Area Group profile name.

Must be a string.

Usage Guidelines Use this command to configure the Location Area Group profile parameters.

profile n3-tunnel

Configures N3 tunnelling information profile configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile n3-tunnel** *profile_name* [**notify**]

notify

Specify to enable downlink data notification.

profile_name

Specify the N3 tunnelling profile name.

Must be a string.

Usage Guidelines Use this command to configure N3 tunnelling information profile configuration.

profile n3-tunnel buffer

Configures the buffering for downlink direction.

Command Modes Exec > Global Configuration (config) > N3 Tunnel Profile Configuration (config-n3-tunnel-*profile_name*)

Syntax Description **buffer** *node*

node

Specify to enable buffering.

Must be one of the following:

- **upf**: Enables Buffering in UPF.

Usage Guidelines Use this command to configure the buffering for downlink direction.

profile ncgi-group

Configures NCGI Group profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile ncgi-group** *profile_name*

profile_name

Specify the NCGI Group profile name.

Must be a string.

Usage Guidelines Use this command to configure NCGI Group profile parameters.

profile ncgi-group ncgis

Configures the list of MCC, MNC, TAC, and NCGI groups.

Command Modes Exec > Global Configuration (config) > NCGI Group Profile Configuration (config-ncgi-group-*profile_name*)

Syntax Description **ncgis**{ **mcc** *mobile_country_code* **mnc** *mobile_network_code* }

mcc mobile_country_code

Specify the Mobile Country Code (MCC). For example, 01, 001.

Must be a string.

mnc mobile_network_code

Specify the Mobile Network Code (MNC). For example, 23, 456.

Must be a string.

Usage Guidelines Use this command to configure the list of MCC, MNC, TAC, and NCGI groups.

You can configure a maximum of 16 elements with this command.

profile ncgi-group ncgis ncgi

Configures NCGI Group parameters.

Command Modes Exec > Global Configuration (config) > NCGI Group Profile Configuration (config-ncgi-group-*profile_name*)

Syntax Description **ncgi list** *ncgi_values*

ncgi_values

Specify the list of NCGI values - 9 digit hex string NR Cell ID.

Must be a string.

Usage Guidelines

Use this command to configure NCGI Group parameters.

You can configure a maximum of 64 elements with this command.

profile ncgi-group ncgis ncgi range

Configures an NCGI range.

Command Modes

Exec > Global Configuration (config) > NCGI Group Profile Configuration (config-ncgi-group-*profile_name*)

Syntax Description

range start *ncgi_range_start* **end** *ncgi_range_end*

end ncgi_range_end

Specify the NCGI range end value.

Must be a string.

start ncgi_range_start

Specify the NCGI range start value.

Must be a string.

Usage Guidelines

Use this command to configure an NCGI range.

You can configure a maximum of 64 elements with this command.

profile network-element amf

Configures peer AMF parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

profile network-element amf *peer_amf_name* [**nf-client-profile** *profile_name* | **failure-handling-profile** *profile_name*]

failure-handling-profile profile_name

Specify the Failure Handling profile name.

Must be a string.

nf-client-profile profile_name

Specify the NF client profile name.

Must be a string.

query-target-plmn *query_target_plmn*

Specify the query parameter target-plmn to be used.

Must be one of the following:

- **primary**
- **-serving**
- **ue**

peer_amf_name

Specify name of the peer AMF.

Must be a string.

Usage Guidelines Use this command to configure peer AMF configuration.

profile network-element amf discovery

Configures the discovery method.

Command Modes Exec > Global Configuration (config) > Peer AMF Profile Configuration (config-amf-*amf_name*)

Command Modes Exec > Global Configuration (config) > Peer CHF Profile Configuration (config-chf-*chf_name*)

Command Modes Exec > Global Configuration (config) > Peer PCF Profile Configuration (config-pcf-*pcf_name*)

Syntax Description **discovery local**

local

Specify to use local configuration for NF discovery. Nf discovery through NRF will be skipped.

Usage Guidelines Use this command to configure the discovery method.

profile network-element amf query-params

Configures query parameter for PCF discovery.

Command Modes Exec > Global Configuration (config) > Peer AMF Profile Configuration (config-amf-*amf_name*)

Command Modes Exec > Global Configuration (config) > Peer CHF Profile Configuration (config-chf-*chf_name*)

Command Modes Exec > Global Configuration (config) > Peer PCF Profile Configuration (config-pcf-*pcf_name*)

Syntax Description **query-params *query_parameters***

Usage Guidelines Use this command to configure the query parameter for PCF discovery.

profile network-element chf

Configures peer CHF parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile chf peer_chf_name [failure-handling-profile profile_name | failure-handling-profile-offline profile_name | nf-client-profile profile_name | nf-client-profile-offline profile_name | nf-client-profile profile_name]`

failure-handling-profile-offline profile_name

Specify the Failure Handling profile name for offline server.

Must be a string.

failure-handling-profile profile_name

Specify the Failure Handling profile name.

Must be a string.

nf-client-profile-offline profile_name

Specify the NF Client profile name for offline server.

Must be a string.

nf-client-profile profile_name

Specify the NF client profile name.

Must be a string.

query-chf-supported-plmn plmn_type

Specify the PLMN type to be used for query parameter chf-supported-plmn.

Must be one of the following:

- **primary**
- **servicing**
- **ue**

query-target-plmn query_target_plmn

Specify the query parameter target-plmn to be used.

Must be one of the following:

- **primary**

- **serving**
- **ue**

peer_chf_name

Specify the peer CHF name.

Must be a string.

Usage Guidelines Use this command to configure peer CHF parameters.

profile network-element chf discovery

Configures the discovery method.

Command Modes Exec > Global Configuration (config) > Peer AMF Profile Configuration (config-amf-*amf_name*)

Command Modes Exec > Global Configuration (config) > Peer CHF Profile Configuration (config-chf-*chf_name*)

Command Modes Exec > Global Configuration (config) > Peer PCF Profile Configuration (config-pcf-*pcf_name*)

Syntax Description **discovery** **local**

local

Specify to use local configuration for NF discovery. Nf discovery through NRF will be skipped.

Usage Guidelines Use this command to configure the discovery method.

profile network-element chf query-params

Configures query parameter for PCF discovery.

Command Modes Exec > Global Configuration (config) > Peer AMF Profile Configuration (config-amf-*amf_name*)

Command Modes Exec > Global Configuration (config) > Peer CHF Profile Configuration (config-chf-*chf_name*)

Command Modes Exec > Global Configuration (config) > Peer PCF Profile Configuration (config-pcf-*pcf_name*)

Syntax Description **query-params** *query_parameters*

Usage Guidelines Use this command to configure the query parameter for PCF discovery.

profile network-element pcf

Configures peer PCF parameters.

Command Modes

Exec > Global Configuration (config)

Syntax Description

```
peer pcf peer_pcf_name [ failure-handling-profile profile_name |  
failure-handling-profile-rat nr fh_rat-profile_name | nf-client-profile  
profile_name | predefined-rule-prefix prefix_name | rulebase-prefix rulebase_prefix  
| response-timeout timeout_duration | use-amf-provided-pcf [ false | true ]  
]
```

failure-handling-profile *profile_name*

Specify the Failure Handling profile name.

Must be a string.

failure-handling-profile-rat nr *fh_rat-profile_name*

Specifies the failure handling profile specific to RAT type. *fh_rat-profile_name* must be a string representing the corresponding NRF failure handling

network profile name.

Must be a string.

nf-client-profile *profile_name*

Specify the NF client profile name.

Must be a string.

predefined-rule-prefix *prefix_name*

Specify the predefined rule prefix string.

Must be a string.

query-target-plmn *query_target_plmn*

Specify the query parameter target-plmn to be used.

Must be one of the following:

- **primary**
- **-serving**
- **ue**

response-timeout *response_timeout_duration*

Specifies the response timeout duration in milliseconds.

Must be an integer.

Default Value: 4000.

rulebase-prefix *rulebase_prefix*

Specify the rulebase prefix string.

Must be a string.

update-notify *update_notify*

Specify the SMF Immediate UpdateNotify Response behavior.

Must be one of the following:

- **expidite-response**

use-amf-provided-pcf{ *false* | *true* }

Specify to enable or disable PCF discovery using PCF ID provided by AMF.

Must be one of the following:

- **false**
- **true**

Default Value: true.

peer_pcf_name

Specify name of the peer PCF.

Must be a string.

Usage Guidelines Use this command to configure peer PCF parameters.

profile network-element pcf discovery

Configures the discovery method.

Command Modes Exec > Global Configuration (config) > Peer AMF Profile Configuration (config-amf-*amf_name*)

Command Modes Exec > Global Configuration (config) > Peer CHF Profile Configuration (config-chf-*chf_name*)

Command Modes Exec > Global Configuration (config) > Peer PCF Profile Configuration (config-pcf-*pcf_name*)

Syntax Description **discovery local**

local

Specify to use local configuration for NF discovery. Nf discovery through NRF will be skipped.

Usage Guidelines Use this command to configure the discovery method.

profile network-element pcf query-params

Configures query parameter for PCF discovery.

Command Modes Exec > Global Configuration (config) > Peer AMF Profile Configuration (config-amf-*amf_name*)

Command Modes Exec > Global Configuration (config) > Peer CHF Profile Configuration (config-chf-*chf_name*)

Command Modes Exec > Global Configuration (config) > Peer PCF Profile Configuration (config-pcf-*pcf_name*)

Syntax Description **query-params** *query_parameters*

query-params *query_params*

Specify the query parameters.

Must be one of the following:

- **chf-supported-plmn**
- **dcnr**
- **dnn**
- **load**
- **location**
- **pdn-type-session**
- **pdn-type-subscription**
- **priority**
- **requester-snsais**
- **slice**
- **supi**
- **tai**
- **target-nf-instance-id**
- **target-plmn**

Usage Guidelines Use this command to configure the query parameter for PCF discovery.

profile network-element udm

Configures peer UDM configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **peer udm** *peer_udm_name* [**nf-client-profile** *profile_name* | **failure-handling-profile** *profile_name*]

peer_udm_name

Specify the peer UDM name.

Must be a string.

Usage Guidelines Use this command to configure the peer UDM configuration.

profile network-element upf

Configures peer UPF parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description

```
profile upf peer_upf_name [ capacity lb_capacity | dnn-list dnn_list |
downlink-data-buffer{ false | true } | downlink-data-report{ false | true
} | mode mode_of_operation | n4-peer-port port_number | node-id node_id | priority
lb_priority | upf-group-profile profile_name ]
```

capacity lb_capacity

Specify the static capacity relative to other UPFs used for load balancing.

Must be an integer in the range of 0-65535.

Default Value: 10.

dnn-list dnn_list

Specify the list of DNNs supported by the UPF node.

Must be a string.

downlink-data-buffer{ false | true }

Specify to enable or disable buffering in UPF for downlink data.

Must be one of the following:

- false
- true

Default Value: true.

downlink-data-report{ false | true }

Specify to enable or disable notification from UPF for downlink data.

Must be one of the following:

- false
- true

Default Value: true.

mode *mode_of_operation*

Specify the UPF mode of operation.

Must be one of the following:

- **offline**

n4-peer-port *port_number*

Specify the UPF N4 peer port number.

Must be an integer in the range of 0-65535.

Default Value: 8805.

node-id *node_id*

Specify the node ID for the UPF peer node.

Must be a string.

priority *lb_priority*

Specify the static priority relative to other UPFs used for load balancing.

Must be an integer in the range of 0-65535.

Default Value: 1.

upf-group-profile *profile_name*

Specify the UPF Group profile name.

Must be a string.

peer_upf_name

Specify the UPF peer name.

Must be a string.

Usage Guidelines

Use this command to configure peer UPF parameters. When active profile is removed, clears if any existing sessions and upf will be un-associated.

profile network-element upf n4-peer-address

Configures the N4 peer address.

Command Modes

Exec > Global Configuration (config) > Peer UPF Profile Configuration (config-upf-upf_name)

Syntax Description

```
n4-peer-address { ipv4-address ipv4_address | ipv6-address ipv6_address }
```

ipv4-address *ipv4_address*

Specify the N4 peer IPv4 address.

ipv6-address *ipv6_address*

Specify the N4 peer IPv6 address.

Usage Guidelines Use this command to configure the N4 peer address.

profile nf-client nf-type amf amf-profile

Configures AMF client configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile nf-client nf-type amf amf-profile** *profile_name*

profile_name

Specify the AMF profile name

Must be a string.

Usage Guidelines Use this command to configure the AMF profile.

profile nf-client nf-type amf amf-profile locality

Configures the locality information.

Command Modes Exec > Global Configuration

Syntax Description **locality** *locality_name* [**priority** *priority*]

priority

Specify the priority for the locality configuration.

Must be an integer in the range of 0-65535.

locality_name

Specify the locality name.

Must be a string.

Usage Guidelines Use this command to configure the locality information.

profile nf-client nf-type amf amf-profile locality service name type

Configures AMF service name type.

Command Modes Exec > Global Configuration

Syntax Description **type** *amf_service_name_type*

responsetimeout *response_timeout*

Specify the response timeout period in milliseconds.

Must be an integer.

Default Value: 2000.

type *amf_service_name_type*

Specify the service name type.

Must be one of the following:

- **namf-comm**
- **namf-evts**
- **namf-loc**
- **namf-mt**

Usage Guidelines Use this command to configure the AMF service name type.

profile nf-client nf-type amf amf-profile locality service name type endpoint-profile

Configures endpoint profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-profile** *endpoint_profile_name*{ **capacity** *capacity_value* | **priority** *priority_value* | **api-uri-prefix** *api_uri_prefix* | **api-root** *api_root* | **uri-scheme** *uri_scheme* }

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

capacity *capacity_value*

Specify the profile capacity.

profile nf-client nf-type amf amf-profile locality service name type endpoint-profile endpoint-name

Must be an integer in the range of 0-65535.

Default Value: 10.

priority *priority_value*

Specify the profile priority.

Must be an integer in the range of 0-65535.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**: HTTP.
- **https**: HTTPS.

endpoint-profile *name*

Specify the endpoint profile name.

Must be a string.

Usage Guidelines

Use this command to configure endpoint profile parameters.

profile nf-client nf-type amf amf-profile locality service name type endpoint-profile endpoint-name

Configures the endpoint name.

Command Modes

Exec > Global Configuration

Syntax Description

endpoint-name *endpoint_name* [**priority** *priority_value* | **capacity** *capacity_value*]

capacity *capacity_value*

Specify the node capacity.

Must be an integer in the range of 0-65535.

priority *priority_value*

Specify the node priority for endpoint.

Must be an integer in the range of 0-65535.

endpoint_name

Specify the endpoint name. You can configure the primary, secondary, and tertiary host (IP: Port) within each endpoint for NF server failover handling. The server failover configuration accepts both the IPv4 and IPv6 addresses. However, the SMF gives preference to the IPv4 address.

Must be a string.

Usage Guidelines Use this configuration to configure the endpoint name.

profile nf-client nf-type amf amf-profile locality service name type endpoint-profile version uri-version

Configures the URI version.

Command Modes Exec > Global Configuration > UDM NF-Client Profile Configuration > UDM Profile Configuration > Locality Configuration > UDM Service Name Type Configuration > Endpoint Profile Configuration > Version Configuration > URL Version Configuration

Syntax Description **version uri-version**{ *uri_version* | **full-version** *full_version* }

full-version full_version

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri_version

Specify the URI version.

Must be a string in the pattern *v\d*.

Usage Guidelines Use this command to configure the URI version information.

profile nf-client nf-type ausf ausf-profile

Configures the AuSF profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **ausf-profile** *profile_name*

profile_name

Specify the profile name.

Must be a string.

Usage Guidelines Use this command to configure the AuSF profile parameters.

profile nf-client nf-type ausf ausf-profile locality

Configures the locality parameters.

Command Modes Exec > Global Configuration

Syntax Description **locality** *locality_name* [**priority** *priority*]

priority *priority*

Specify the locality configuration priority.

Must be an integer in the range of 0-65535.

locality_name

Specify the locality name.

Must be a string.

Usage Guidelines Use this command to configure the locality parameters.

profile nf-client nf-type ausf ausf-profile locality service name type

Configures AuSF service name type.

Command Modes Exec > Global Configuration

Syntax Description **type** *ausf_service_name_type*

type *ausf_service_name_type*

Specify the AuSF service name type.

Must be one of the following:

- **nausf-auth**

Usage Guidelines Use this command to configure AuSF service name type.

profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile

Configures endpoint profile parameters.

Command Modes Exec > Global Configuration

Syntax Description

```
endpoint-profile endpoint_profile_name{ capacity capacity_value | priority
priority_value | api-uri-prefix api_uri_prefix | api-root api_root | uri-scheme
uri_scheme }
```

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

capacity *capacity_value*

Specify the profile capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

priority *priority_value*

Specify the profile priority.

Must be an integer in the range of 0-65535.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**: HTTP.
- **https**: HTTPS.

endpoint_profile_name

Specify the endpoint profile name.

Must be a string.

Usage Guidelines

Use this command to configure endpoint profile parameters.

profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile endpoint-name

Configures the endpoint name.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-name** *endpoint_name* [**priority** *priority_value* | **capacity** *capacity_value*]

capacity *capacity_value*

Specify the node capacity.

Must be an integer in the range of 0-65535.

priority *priority_value*

Specify the node priority for endpoint.

Must be an integer in the range of 0-65535.

endpoint_name

Specify the endpoint name. You can configure the primary, secondary, and tertiary host (IP: Port) within each endpoint for NF server failover handling. The server failover configuration accepts both the IPv4 and IPv6 addresses. However, the SMF gives preference to the IPv4 address.

Must be a string.

Usage Guidelines Use this configuration to configure the endpoint name.

profile nf-client nf-type ausf ausf-profile locality service name type endpoint-profile version uri-version

Configures the URI version.

Command Modes Exec > Global Configuration > UDM NF-Client Profile Configuration > UDM Profile Configuration > Locality Configuration > UDM Service Name Type Configuration > Endpoint Profile Configuration > Version Configuration > URL Version Configuration

Syntax Description **version uri-version**{ *uri_version* | **full-version** *full_version* }

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri_version

Specify the URI version.

Must be a string in the pattern v\d.

Usage Guidelines Use this command to configure the URI version information.

profile nf-client nf-type chf chf-profile

Configures the CHF profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **chf chf-profile name** *profile_name*

name *profile_name*

Specify the CHF profile name.

Must be a string.

Usage Guidelines Use this command to configure the CHF profile parameters.

profile nf-client nf-type chf chf-profile locality

Configures the CHF locality parameters.

Command Modes Exec > Global Configuration

Syntax Description **locality name** *locality_name* [**priority** *priority*]

name *locality_name*

Specify the locality name.

Must be a string.

priority *priority*

Specify the priority for the locality configuration.

Must be an integer in the range of 0-65535.

Usage Guidelines Use this command to configure the locality parameters.

profile nf-client nf-type chf chf-profile locality service name type

Configures the CHF service name type.

Command Modes Exec > Global Configuration

Syntax Description **type** *service_name_type*

responsetimeout *response_timeout*

Specify the response timeout period in milliseconds.

Must be an integer.

Default Value: 2000.

type *service_name_type*

Specify the CHF service name type.

Must be one of the following:

- **nchf-convergedcharging**
- **nchf-spendinglimitcontrol**

Usage Guidelines

Use this command to configure the CHF service name type.

profile nf-client nf-type chf chf-profile locality service name type endpoint-profile

Configures endpoint profile parameters.

Command Modes

Exec > Global Configuration

Syntax Description

```
endpoint-profile endpoint_profile_name{ capacity capacity_value | priority
priority_value | api-uri-prefix api_uri_prefix | api-root api_root | uri-scheme
uri_scheme }
```

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

capacity *capacity_value*

Specify the profile capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

priority *priority_value*

Specify the profile priority.

Must be an integer in the range of 0-65535.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**: HTTP.
- **https**: HTTPS.

endpoint_profile_name

Specify the endpoint profile name.

Must be a string.

Usage Guidelines

Use this command to configure endpoint profile parameters.

profile nf-client nf-type chf chf-profile locality service name type endpoint-profile endpoint-name

Configures the endpoint name.

Command Modes

Exec > Global Configuration

Syntax Description

endpoint-name *endpoint_name* [**priority** *priority_value* | **capacity** *capacity_value*]

capacity *capacity_value*

Specify the node capacity.

Must be an integer in the range of 0-65535.

priority *priority_value*

Specify the node priority for endpoint.

Must be an integer in the range of 0-65535.

endpoint_name

Specify the endpoint name. You can configure the primary, secondary, and tertiary host (IP: Port) within each endpoint for NF server failover handling. The server failover configuration accepts both the IPv4 and IPv6 addresses. However, the SMF gives preference to the IPv4 address.

Must be a string.

Usage Guidelines

Use this configuration to configure the endpoint name.

profile nf-client nf-type chf chf-profile locality service name type endpoint-profile version uri-version

Configures the URI version.

Command Modes Exec > Global Configuration > UDM NF-Client Profile Configuration > UDM Profile Configuration > Locality Configuration > UDM Service Name Type Configuration > Endpoint Profile Configuration > Version Configuration > URL Version Configuration

Syntax Description **version uri-version** { *uri_version* | **full-version** *full_version* }

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri_version

Specify the URI version.

Must be a string in the pattern *v\d*.

Usage Guidelines Use this command to configure the URI version information.

profile nf-client nf-type eir eir-profile

Configures EIR profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **eir-profile** *eir_profile_name*

eir_profile_name

Specify the EIR profile name.

Must be a string.

Usage Guidelines Use this command to configure the EIR profile parameters.

profile nf-client nf-type eir eir-profile locality

Configures locality parameters.

Command Modes Exec > Global Configuration

Syntax Description **locality** *locality_name*

priority *priority*

Specify the priority of the locality configuration.

Must be an integer in the range of 0-65535.

locality_name

Specify the locality name.

Must be a string.

Usage Guidelines Use this command to configure the locality parameters.

profile nf-client nf-type eir eir-profile locality service name type

Configures the EIR service name type.

Command Modes Exec > Global Configuration

Syntax Description **type** *service_name_type*

responsetimeout *response_timeout_interval*

Specify the timeout interval in milliseconds.

Must be an integer.

Default Value: 2000.

type *service_name_type*

Specify the EIR service name type.

Must be one of the following:

- **n5g-eir-eic**

Usage Guidelines Use this command to configure the EIR service name type.

profile nf-client nf-type eir eir-profile locality service name type endpoint-profile

Configures endpoint profile parameters.

Command Modes Exec > Global Configuration

Syntax Description

```
endpoint-profile endpoint_profile_name{ capacity capacity_value | priority
priority_value | api-uri-prefix api_uri_prefix | api-root api_root | uri-scheme
uri_scheme }
```

api-root *api_root*

Specify the API root.

Must be a string.

api-uri-prefix *api_uri_prefix*

Specify the API URI prefix.

Must be a string.

capacity *capacity_value*

Specify the profile capacity.

Must be an integer in the range of 0-65535.

Default Value: 10.

priority *priority_value*

Specify the profile priority.

Must be an integer in the range of 0-65535.

Default Value: 1.

uri-scheme *uri_scheme*

Specify the URI scheme.

Must be one of the following:

- **http**: HTTP.
- **https**: HTTPS.

endpoint_profile_name

Specify the endpoint profile name.

Must be a string.

Usage Guidelines

Use this command to configure endpoint profile parameters.

profile nf-client nf-type eir eir-profile locality service name type endpoint-profile endpoint-name

Configures the endpoint name.

Command Modes Exec > Global Configuration

Syntax Description **endpoint-name** *endpoint_name* [**priority** *priority_value* | **capacity** *capacity_value*]

capacity *capacity_value*

Specify the node capacity.

Must be an integer in the range of 0-65535.

priority *priority_value*

Specify the node priority for endpoint.

Must be an integer in the range of 0-65535.

endpoint_name

Specify the endpoint name. You can configure the primary, secondary, and tertiary host (IP: Port) within each endpoint for NF server failover handling. The server failover configuration accepts both the IPv4 and IPv6 addresses. However, the SMF gives preference to the IPv4 address.

Must be a string.

Usage Guidelines Use this configuration to configure the endpoint name.

profile nf-client nf-type eir eir-profile locality service name type endpoint-profile version uri-version

Configures the URI version.

Command Modes Exec > Global Configuration > UDM NF-Client Profile Configuration > UDM Profile Configuration > Locality Configuration > UDM Service Name Type Configuration > Endpoint Profile Configuration > Version Configuration > URL Version Configuration

Syntax Description **version uri-version**{ *uri_version* | **full-version** *full_version* }

full-version *full_version*

Specify the full version in the format *major-version.minor-version.patch-version.[alpha-draft-number]*

Must be a string.

uri_version

Specify the URI version.

Must be a string in the pattern *v\d*.

Usage Guidelines Use this command to configure the URI version information.

profile nf-client nf-type pcf pcf-profile

PCF profile configuration.

Command Modes Exec > Global Configuration

Syntax Description **pcf pcf-profile name** *profile_name*

name *profile_name*

Specify the PCF profile name.

Must be a string.

Usage Guidelines Use this command to configure the PCF profile.

profile nf-client nf-type pcf pcf-profile locality

Configures the locality information.

Command Modes Exec > Global Configuration

Syntax Description **pcf locality** *locality_name* [**priority** *priority_value*]

priority *priority*

Specify the priority for the locality configuration.

Must be an integer in the range of 0-65535.

locality_name

Specify the locality name.

Must be a string.

Usage Guidelines Use this command to configure the locality information.

profile nf-client nf-type pcf pcf-profile locality service name type

Configures the PCF service name type.

Command Modes Exec > Global Configuration

Syntax Description **type** *service_name_type*

responsetimeout *response_timeout*

Specify the response timeout period in milliseconds.

Must be an integer.

Default Value: 2000.

type *service_name_type*

Specify the PCF service name parameters.

Must be one of the following:

- **npcf-am-policy-control**
- **npcf-bdtpolicycontrol**
- **npcf-eventexposure**
- **npcf-policyauthorization**
- **npcf-smpolicycontrol**
- **npcf-ue-policy-control**

Usage Guidelines Use this command to configure the PCF service name type.

profile nf-client nf-type smf smf-profile

Configures SMF profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **smf-profile** *smf_profile_name*

smf_profile_name

Specify the SMF profile name.

Must be a string.

Usage Guidelines Use this command to configure the SMF profile parameters.

profile nf-client nf-type smf smf-profile locality

Configures locality parameters.

Command Modes Exec > Global Configuration

Syntax Description **locality** *locality_name*

priority *priority*

Specify the priority of the locality configuration.

Must be an integer in the range of 0-65535.

locality_name

Specify the locality name.

Must be a string.

Usage Guidelines Use this command to configure the locality parameters.

profile nf-client nf-type udm udm-profile

Configures UDM profile parameters.

Command Modes Exec > Global Configuration

Syntax Description **udm-profile** *udm_profile_name*

udm_profile_name

Specify the UDM profile name.

Must be a string.

Usage Guidelines Use this command to configure the UDM profile for an NF client.

profile nf-client nf-type udm udm-profile locality

Configures locality information.

Command Modes Exec > Global Configuration

Syntax Description **locality** *locality_name* [**priority** *priority*]

priority *priority*

This keyword sets the priority for the locality configuration.

Must be an integer in the range of 0-65535.

locality_name

Specify the locality name.

Must be a string.

Usage Guidelines Use this command to configure the locality information.

profile nf-client nf-type udm udm-profile locality service name type

Configures the UDM service type.

Command Modes Exec > Global Configuration

Syntax Description **type** *service_name_type*

responsetimeout response_timeout

Specify the response timeout period in milliseconds.

Must be an integer.

Default Value: 2000.

type service_name_type

Specify the UDM service name type.

Must be one of the following:

- **nudm-ee**
- **nudm-pp**
- **nudm-sdm**
- **nudm-ueau**
- **nudm-uecm**

Usage Guidelines Use this command to configure the UDM service type.

profile nf-client-failure nf-type amf profile failure-handling

Configures the AMF failure handling template name.

Command Modes Exec > Global Configuration

Syntax Description **failure-handling name** *template_name*

template_name

Specify the AMF failure handling template name.

Must be a string.

Usage Guidelines Use this command to configure the failure handling template for AMF profile.

profile nf-client-failure nf-type amf profile failure-handling service name type

Configures the AMF service name type.

Command Modes Exec > Global Configuration

Syntax Description **type** *amf_service_name_type*

responsetimeout response_timeout

Specify the response timeout period in milliseconds.

Must be an integer.

Default Value: 2000.

type amf_service_name_type

Specify the AMF service name type.

Must be one of the following:

- **namf-comm**
- **namf-evts**
- **namf-loc**
- **namf-mt**

Usage Guidelines Use this command to configure AMF service name type.

profile nf-client-failure nf-type amf profile failure-handling service name type message type

Configures the AMF message type.

Command Modes Exec > Global Configuration

Syntax Description **message type** *amf_message_type*

amf_message_type

Specify the AMF message type.

Must be one of the following:

- **AmfCommEBIAssignment**
- **AmfCommN1N2MessageTransfer**

- AmfCommSMStatusChangeNotify

Usage Guidelines Use this command to configure the AMF message type.

profile nf-client-failure nf-type ausf profile failure-handling

Configures the failure handling template name.

Command Modes Exec > Global Configuration

Syntax Description **failure-handling** *template_name*

template_name

Specify the failure handling template name.

Must be a string.

Usage Guidelines Use this command to configure the failure handling template for AuSF profile.

profile nf-client-failure nf-type ausf profile failure-handling service name type

Configures the AuSF service name type.

Command Modes Exec > Global Configuration

Syntax Description **service name type** *ausf_service_name_type*

ausf_service_name_type

Specify the AuSF service name type.

Must be one of the following:

- **nausf-auth**

Usage Guidelines Use this command to configure the AuSF service name type.

profile nf-client-failure nf-type ausf profile failure-handling service name type message type

Configures the AuSF message type.

Command Modes Exec > Global Configuration

Syntax Description **message type** *ausf_message_type*

ausf_message_type

Specify the AuSF message type.

Must be one of the following:

- **AusfAuthenticationCfm**
- **AusfAuthenticationReq**

Usage Guidelines Use this command to configure the AuSF message type.

profile nf-client-failure nf-type chf profile failure-handling

Configures the CHF failure handling template name.

Command Modes Exec > Global Configuration

Syntax Description **failure-handling** *template_name*

template_name

Specify the CHF failure handling template name.

Must be a string.

Usage Guidelines Use this command to configure the CHF failure handling template for CHF profile.

profile nf-client-failure nf-type chf profile failure-handling service name type

Configures the CHF service name type.

Command Modes Exec > Global Configuration

Syntax Description **type** *chf_service_name_type*

responsetimeout ***response_timeout***

Specify the response timeout period in milliseconds.

Must be an integer.

Default Value: 2000.

type ***chf_service_name_type***

Specify the CHF service name type.

Must be one of the following:

- **nchf-convergedcharging**
- **nchf-spendinglimitcontrol**

Usage Guidelines

Use this command to configure the CHF service name type.

profile nf-client-failure nf-type chf profile failure-handling service name type message type

Specify the CHF message type.

Command Modes

Exec > Global Configuration

Syntax Description

message type *chf_message_type*

chf_message_type

Specify the CHF message type.

Must be one of the following:

- **ChfConvergedchargingCreate**
- **ChfConvergedchargingDelete**
- **ChfConvergedchargingUpdate**
- **ChfSpendingLimitContolSubscribe**
- **ChfSpendingLimitContolUnSubscribe**

Usage Guidelines

Use this command to configure the CHF message type.

profile nf-client-failure nf-type eir profile failure-handling

Configures the EIR failure handling template name.

Command Modes

Exec > Global Configuration

Syntax Description

failure-handling *template_name*

template_name

Specify the EIR failure handling template name.

Must be a string.

Usage Guidelines

Use this command to configure the EIR failure handling template for CHF profile.

profile nf-client-failure nf-type eir profile failure-handling service name type

Configures the EIR service name type.

Command Modes Exec > Global Configuration

Syntax Description **type** *eir_service_name_type*

responsetimeout response_timeout

Specify the response timeout period in milliseconds.

Must be an integer.

Default Value: 2000.

type eir_service_name_type

Specify the EIR service name type.

Must be one of the following:

- **n5g-eir-eic**

Usage Guidelines Use this command to configure the EIR service name type.

profile nf-client-failure nf-type eir profile failure-handling service name type message type

Specify the EIR message type.

Command Modes Exec > Global Configuration

Syntax Description **message type** *eir_message_type*

eir_message_type

Specify the EIR message type.

Must be one of the following:

- **EirCheckEquipmentIdentity**

Usage Guidelines Use this command to configure the EIR message type.

profile nf-client-failure nf-type pcf profile failure-handling

Configures the PCF failure handling template name.

Command Modes Exec > Global Configuration

Syntax Description **failure-handling** *template_name*

template_name

Specify the PCF failure handling template name.

Must be a string.

Usage Guidelines Use this command to configure the failure handling template for PCF profile.

profile nf-client-failure nf-type pcf profile failure-handling service name type

Configures PCF service name type.

Command Modes Exec > Global Configuration

Syntax Description **type** *pcf_service_name_type*

responsetimeout response_timeout

Specify the response timeout period in milliseconds.

Must be an integer.

Default Value: 2000.

pcf_service_name_type

Specify the PCF service name type.

Must be one of the following:

- **npcf-am-policy-control**
- **npcf-bdtpolicycontrol**
- **npcf-eventexposure**
- **npcf-policyauthorization**
- **npcf-smpolicycontrol**
- **npcf-ue-policy-control**

Usage Guidelines Use this command to configure the PCF service name type.

profile nf-client-failure nf-type udm profile failure-handling

Configures the failure handling template name.

Command Modes Exec > Global Configuration

Syntax Description **failure-handling** *template_name*

template_name

Specify the UDM failure handling template name.

Must be a string.

Usage Guidelines Use this command to configure the failure handling template for UDM profile.

profile nf-client-failure nf-type udm profile failure-handling service name type

Configures UDM service name type.

Command Modes Exec > Global Configuration

Syntax Description **type** *udm_service_name_type* [**responsetimeout** *response_timeout*]

responsetimeout response_timeout

Specify the response timeout period in milliseconds.

Must be an integer.

Default Value: 2000.

udm_service_name_type

Specify the UDM service name type.

Must be one of the following:

- **nudm-ee**
- **nudm-pp**
- **nudm-sdm**
- **nudm-ueau**
- **nudm-uecm**

Usage Guidelines Use this command to configure the UDM service name type.

profile nf-pair nf-type

Configures the NF client pair type parameter.

Command Modes Exec > Global Configuration

Syntax Description **nf-pair nf-type type** *nf_type*

limit max_discovery_profiles

Specify the maximum number of discovery profiles that NRF can send.

Must be an integer in the range of 1-1000.

Default Value: 10.

max-payload-size max_payload_size

Specify the maximum payload size of the discovery response.

Must be an integer in the range of 124-2000.

Default Value: 124.

nrf-discovery-group group_name

Specify the NRF discovery group name.

Must be a string.

type nf_type

Specify the NF client pair type.

Must be one of the following:

- **5G_EIR**
- **AF**
- **AMF**
- **AUSF**
- **BSF**
- **CHF**
- **GMLC**
- **LMF**
- **N3IWF**
- **NEF**
- **NRF**

- NSSF
- NWDAF
- PCF
- SEPP
- SMF
- SMSF
- UDM
- UDR
- UDSF
- UPF

Usage Guidelines Configures Nf client pair parameters. Use this command to configure the NF client pair type parameter.

profile nf-pair nf-type cache

Configures the NF client pair cache.

Command Modes Exec > Global Configuration

Syntax Description Use this command to configure the NF client pair cache.

Usage Guidelines Use this command to configure the NF client pair cache.

profile nf-pair nf-type cache invalidation

Configures the invalidation cache parameters.

Command Modes Exec > Global Configuration

Syntax Description `invalidation{ false | true }`

Usage Guidelines Use this command to configure the invalidation cache parameters.

profile nf-pair nf-type cache invalidation true

Configures the invalidation cache for "true" case.

Command Modes Exec > Global Configuration

Syntax Description `true`

timeout *timeout_period*

Specify the invalidation cache timeout period in milliseconds.

Must be an integer.

Default Value: 0.

true-value

true-value.

Usage Guidelines Use this command to configure the true case parameters for invalidation cache.

profile nf-pair nf-type locality

Configures client locality parameter.

Command Modes Exec > Global Configuration

Syntax Description **locality**{ **client** *locality_name* | **geo-server** *locality_name* | **preferred-server** *locality_name* }

client *locality_name*

Specify the Client locality information.

Must be a string.

geo-server *locality_name*

Specify the Geo service locality information.

Must be a string.

preferred-server *locality_name*

Specify the preferred server locality information.

Must be a string.

Usage Guidelines Use this command to configure the client locality parameter.

profile pcscf

Configures the P-CSCF profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **pcscf** *profile_name*

profile_name

Specify the P-CSCF profile name.

Must be a string.

Usage Guidelines Use this command to configure the P-CSCF profile.

profile pcscf fqdn

Configures the P-CSCF server's Fully Qualified Domain Name (FQDN).

Command Modes Exec > Global Configuration (config) > P-CSCF Configuration (config-pcscf-*profile_name*)

Syntax Description **fqdn** *fqdn*

fqdn

Specify the P-CSCF server's FQDN.

Must be a string.

Usage Guidelines Use this command to configure the P-CSCF server's FQDN.

profile pcscf pcscf-selection

Configures the P-CSCF server selection algorithm.

Command Modes Exec > Global Configuration (config) > P-CSCF Configuration (config-pcscf-*profile_name*)

Syntax Description **pcscf-selection** *algorithm*

algorithm

Specify the P-CSCF server selection algorithm.

Must be one of the following:

- **round-robin**

Default Value: round-robin.

Usage Guidelines Use this command to configure the P-CSCF server selection method.";

profile pcscf v4-list

Configures the P-CSCF IPv4 server details in the P-CSCF profile.

Command Modes Exec > Global Configuration (config) > P-CSCF Configuration (config-pcscf-*profile_name*)

Syntax Description `v4-list`

Usage Guidelines Use this command to configure the P-CSCF IPv4 server details in the P-CSCF profile. Enters the V4 List Configuration mode (config-v4-list).";

profile pscsf v4-list list-entry

Configures the P-CSCF IPv4 server list entries.

Command Modes Exec > Global Configuration (config) > P-CSCF Configuration (config-pscsf-profile_name) > V4 List Configuration (config-v4-list)

Syntax Description `list-entry precedence precedence_number`

precedence precedence_number

Specify the precedence number for P-CSCF IPv4 server configuration.

Must be an integer in the range of 1-64.

Usage Guidelines Use this command to configure the P-CSCF IPv4 server list entries.

profile pscsf v4-list list-entry primary

Configures the IPv4 address of the primary P-CSCF server.

Command Modes Exec > Global Configuration

Syntax Description `primary ipv4 ipv4_address`

ipv4 ipv4_address

Specify the IPv4 address of the primary P-CSCF server in dotted-decimal notation.

Usage Guidelines Use this command to configure the IPv4 address of the primary P-CSCF server.

Example

The following command configures the primary P-CSCF server with IPv4 address 30.22.21.44:

```
primary ipv4 30.22.21.44
```

profile pscsf v4-list list-entry secondary

Configures the IPv4 address of the secondary P-CSCF server.

Command Modes Exec > Global Configuration

Syntax Description **secondary ipv4** *ipv4_address*

ipv4 *ipv4_address*

Specify the IPv4 address of the secondary P-CSCF server in dotted-decimal notation.

Usage Guidelines Use this to command configure the IPv4 address of the secondary P-CSCF server.

Example

The following command configures the secondary P-CSCF server with IPv4 address 30.22.21.44:

```
secondary ipv4 30.22.21.44
```

profile pcscf v4-list list-entry tertiary

Configures the IPv4 address of the tertiary P-CSCF server.

Command Modes Exec > Global Configuration

Syntax Description **tertiary ipv4** *ipv4_address*

ipv4 *ipv4_address*

Specify the IPv4 address of the tertiary P-CSCF server in dotted-decimal notation.

Usage Guidelines Use this to command configure the IPv4 address of the tertiary P-CSCF server.

Example

The following command configures the tertiary P-CSCF server with IPv4 address 30.22.21.44:

```
tertiary ipv4 30.22.21.44
```

profile pcscf v4v6-list

Configures the P-CSCF IPv4v6 server details.

Command Modes Exec > Global Configuration

Syntax Description **v4v6-list**

Usage Guidelines Use this command to configure the P-CSCF IPv4v6 server details in the P-CSCF profile.";

profile pcscf v4v6-list list-entry

Configures the P-CSCF IPv4v6 server list entries.

Command Modes	Exec > Global Configuration
Syntax Description	v4v6-list list-entry precedence <i>precedence_number</i> precedence <i>precedence_number</i> Specify the precedence of entries in the P-CSCF IPv4v6 server list. Must be an integer in the range of 1-64.
Usage Guidelines	Use this command to configure the P-CSCF IPv4v6 server list entries.

profile pcscf v4v6-list list-entry primary

Configures the IPv4v6 address of the primary P-CSCF server.

Command Modes	Exec > Global Configuration
Syntax Description	primary ipv4 <i>ipv4_address</i> ipv6 <i>ipv6_address</i> ipv4 <i>ipv4_address</i> Specify the IPv4 address of the primary P-CSCF server in dotted-decimal notation. ipv6 <i>ipv6_address</i> Specify the IPv6 address of the primary P-CSCF server in colon-separated hexadecimal notation.
Usage Guidelines	Use this command to configure the IPv4v6 address of the primary P-CSCF server.

Example

The following command configures the primary P-CSCF server with IPv4 address as 30.22.21.44 and IPv6 address as 123:345:456::6578:

```
primary ipv4 30.22.21.44 ipv6 123:345:456::6578
```

profile pcscf v4v6-list list-entry secondary

Configures the IPv4v6 address of the secondary P-CSCF server.

Command Modes	Exec > Global Configuration
Syntax Description	secondary { [ipv4 <i>ipv4_address</i>] [ipv6 <i>ipv6_address</i>] } ipv4 <i>ipv4_address</i> Specify the IPv4 address of the secondary P-CSCF server in dotted-decimal notation.

ipv6 ipv6_address

Specify the IPv6 address of the secondary P-CSCF server in colon-separated hexadecimal notation.

Usage Guidelines

Use this command to configure the IPv4v6 address of the secondary P-CSCF server.

Example

The following command configures the secondary P-CSCF server with IPv4 address as 30.22.21.44 and IPv6 address as 123:345:456::6578:

```
secondary ipv4 30.22.21.44 ipv6 123:345:456::6578
```

profile pscsf v4v6-list list-entry tertiary

Configures the IPv4v6 address of the tertiary P-CSCF server.

Command Modes

Exec > Global Configuration

Syntax Description

```
tertiary{ [ ipv4 ipv4_address ] [ ipv6 ipv6_address ] }
```

ipv4 ipv4_address

Specify the IPv4 address of the tertiary P-CSCF server in dotted-decimal notation.

ipv6 ipv6_address

Specify the IPv6 address of the tertiary P-CSCF server in colon-separated hexadecimal notation.

Usage Guidelines

Use this command to configure the IPv4v6 address of the tertiary P-CSCF server.

Example

The following command configures the tertiary P-CSCF server with IPv4 address as 30.22.21.44 and IPv6 address as 123:345:456::6578:

```
tertiary ipv4 30.22.21.44 ipv6 123:345:456::6578
```

profile pscsf v6-list

Configures the P-CSCF IPv6 server details.

Command Modes

Exec > Global Configuration (config) > P-CSCF Configuration (config-pscsf-profile_name)

Syntax Description

```
v6-list
```

Usage Guidelines

Use this command to configure the P-CSCF IPv6 server details in the P-CSCF profile. Enters the V6 List Configuration mode (config-v6-list).";

profile pcscf v6-list list-entry

Configures the P-CSCF IPv6 server list entries.

Command Modes Exec > Global Configuration

Syntax Description **v6-list list-entry precedence** *precedence_number*

precedence_number

Specify the precedence of entries in the P-CSCF IPv6 server list.

Must be an integer in the range of 1-64.

Usage Guidelines Use this command to configure the P-CSCF IPv6 server list entries.

profile pcscf v6-list list-entry primary

Configures the IPv6 address of the primary P-CSCF server.

Command Modes Exec > Global Configuration (config) > P-CSCF Configuration (config-pcscf-profile_name) > V6 List Configuration (config-v6-list)

Syntax Description **primary ipv6** *ipv6_address*

ipv6 ipv6_address

Specify the IPv6 address of the primary P-CSCF server in colon-separated hexadecimal notation.

Usage Guidelines Use this command to configure the IPv6 address of the primary P-CSCF server.

Example

The following command configures the primary P-CSCF server with IPv6 address 123:345:456::6578:

```
primary ipv6 123:345:456::6578
```

profile pcscf v6-list list-entry secondary

Configures the IPv6 address of the secondary P-CSCF server.

Command Modes Exec > Global Configuration

Syntax Description **secondary ipv6** *ipv6_address*

ipv6 ipv6_address

Specify the IPv6 address.

Usage Guidelines Use this command to configure the IPv6 address of the secondary P-CSCF server.

Example

The following command configures the secondary P-CSCF server with IPv6 address 123:345:456::6578:

```
secondary ipv6 123:345:456::6578
```

profile pcscf v6-list list-entry tertiary

Configures the IPv6 address of the tertiary P-CSCF server.

Command Modes Exec > Global Configuration

Syntax Description `tertiary ipv6 ipv6_address`

ipv6 *ipv6_address*

Specify the IPv6 address.

Usage Guidelines Use this command to configure the IPv6 address of the tertiary P-CSCF server.

Example

The following command configures the tertiary P-CSCF server with the IPv6 address 123:345:456::6578:

```
tertiary ipv6 123:345:456::6578
```

profile ppd

Configures the Paging Policy Differentiation (PPD) profile configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description `ppd ppd_profile_name [fqi 5qi_priority_levels]`

fqi *5qi_priority_levels*

Specify the range of 5qi priority levels.

Must be an integer.

-Or-

Must be a string.

ppd_profile_name

Specify the PPD profile name.

Must be a string.

Usage Guidelines Use this command to configure the PPD profile configuration.

profile ppd dscp-list

Configures the DSCP values.

Command Modes Exec > Global Configuration (config) > PPD Configuration (config-ppd-*profile_name*)

Syntax Description **dscp** *dscp_value* [**ppi** *ppi_value*]

dscp dscp_value

Specify the DSCP value.

Must be a string.

ppi ppi_value

Specify the Paging Policy Indicator (PPI) value.

Must be an integer in the range of 0-7.

Usage Guidelines Use this command to configure the DSCP values.

profile qos

Configures the QoS profile configuration.

Command Modes Exec > Global Configuration (config)

Syntax Description **qos** *qos_profile_name* [**priority** *5qi_priority*] [**qi5** *qos_id*]

priority 5qi_priority

Specify the 5QI priority level.

Must be an integer in the range of 1-127.

qi5 qos_id

Specify the ID for the authorized QoS parameters.

Must be an integer in the range of 0-255.

qos_profile_name

Specify the QoS profile name.

Must be a string.

Usage Guidelines Use this command to configure the QoS profile configuration.

profile qos ambr

Configures the Aggregate Maximum Bit Rate (AMBR).

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **ambr** { **ul** *ambr_uplink_threshold* | **dl** *ambr_downlink_threshold* }

dl *ambr_downlink_threshold*

Specify the AMBR downlink threshold in bps, Kbps, Mbps, Gbps, or Tbps.

Must be a string.

ul *ambr_uplink_threshold*

Specify the AMBR uplink threshold in bps, Kbps, Mbps, Gbps, or Tbps.

Must be a string.

Usage Guidelines Use this command to configure the AMBR.

profile qos arp

Configures the Allocation and Retention Priority (ARP) for the service data.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **arp** **priority-level** *priority_level* [**preempt-cap** *preemption_capability*] [**preempt-vuln** *preemption_vulnerability*]

preempt-cap *preemption_capability*

Specify the preemption capability.

Must be one of the following:

- MAY_PREEMPT
- NOT_PREEMPT

Default Value: MAY_PREEMPT.

preempt-vuln *preemption_vulnerability*

Specify the preemption vulnerability.

Must be one of the following:

- **NOT_PREEMPTABLE**
- **PREEMPTABLE**

Default Value: NOT_PREEMPTABLE.

priority-level *priority_level*

Specify the priority level.

Must be an integer in the range of 1-15.

Usage Guidelines Use this command to configure the ARP for the service data.

profile qos dscp-map qi5

Configures the standard 5QI value.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **dscp-map qi5** *qci_name*

qci_name

Specify the QCI name.

Must be an integer in the range of 1-255.

Usage Guidelines Configures the 5QI to DSCP-Marking mapping. Use this command to configure the standard 5QI value.

profile qos dscp-map qi5 arp-priority-level

Configures the ARP priority level.

Command Modes Exec > Global Configuration (config) > SGW QoS Profile Configuration (config-sgw-qos-profile-sgw_qos_profile_name)

Syntax Description **dscp-map operator-defined-qci** *operator_defined_qci* [**gbr arp-priority-level** *arp_priority_level*]

arp_priority_level

Specify the ARP priority level.

Must be an integer in the range of 1-255.

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile qos dscp-map qi5 arp-priority-level dscp-info

Configures the DSCP type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type** *dscp_type*

dl-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-encap-dscp-marking dscp_marking

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encaps-header

Specify the DSCP value be applied to encaps header.

dl-ud-dscp dscp_marking

Specify the DSCP value to be applied to packets.

Must be a string.

dl-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-ud-encap-dscp dscp_marking

Specify the DSCP value to be applied to packets.

Must be a string.

encsp-header

Specify the DSCP value to be applied to encaps header.

type dscp_type

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

user-datagram1

Specify DSCP value be applied to user datagram.

Usage Guidelines

Configures the type of the QCI to GBR. Use this command to configure the DSCP type.

profile qos dscp-map qi5 arp-priority-level dscp-info user-datagram

Configures the DCSP value to be applied to user datagram.

Command Modes

Exec > Global Configuration

Syntax Description

user-datagram **ul-uD-dscp-marking** *dscp_marking*

ul-uD-dscp-marking *dscp_marking*

Specify the DSCP value to be applied to packets.

Must be a string.

Usage Guidelines

Use this command to configure the DCSP value to be applied to user datagram.

profile qos dscp-map qi5 dscp-info

Configures the DSCP type.

Command Modes

Exec > Global Configuration

Syntax Description

dscp-info **type** *dscp_type*

dl-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-encap-dscp-marking *dscp_marking*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encaps-header

Specify the DSCP value be applied to encaps header.

dl-ud-dscp *dscp_marking*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-ud-encap-dscp *dscp_marking*

Specify the DSCP value to be applied to packets.

Must be a string.

encsp-header

Specify the DSCP value to be applied to encaps header.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

user-datagram1

Specify DSCP value be applied to user datagram.

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the DSCP type.

profile qos dscp-map qi5 dscp-info user-datagram

Configures the DCSP value to be applied to user datagram.

Command Modes Exec > Global Configuration

Syntax Description **user-datagram ul-uD-dscp-marking** *dscp_marking*

ul-uD-dscp-marking *dscp_marking*

Specify the DSCP value to be applied to packets.

Must be a string.

Usage Guidelines Use this command to configure the DCSP value to be applied to user datagram.

profile qos max

Configures the maximum data burst volume.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **max data-burst** *max_data_burst_volume*

data-burst *max_data_burst_volume*

Specify the maximum data burst volume.

Must be an integer in the range of 1-4095.

Usage Guidelines Use this command to configure the maximum data burst volume.

profile radius

Configures RADIUS client parameters.

Command Modes Exec > Global Configuration

Syntax Description **radius** *options*

algorithm *server_select_algorithm*

Specify the algorithm for selecting the RADIUS server. Default Value: first-server.

Must be one of the following:

- **first-server**
- **round-robin**

deadtime *deadtime_interval*

Specify the time interval, in minutes, between the RADIUS server being marked unreachable and connection can be re-attempted.

Must be an integer in the range of 0-65535.

max_retries

Specify the maximum number of times the system will attempt retry with the RADIUS server.

Must be an integer in the range of 0-65535.

timeout_interval

Specify the time interval to elapse for a response from the RADIUS server before re-transmitting.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to configure RADIUS client parameters.

profile radius accounting

Configures RADIUS accounting parameters.

Command Modes Exec > Global Configuration

Syntax Description `accounting options`

algorithm server_select_algorithm

Specify the algorithm for selecting the RADIUS server. Default Value: first-server.

Must be one of the following:

- **first-server**
- **round-robin**

deadtime deadtime_interval

Specify the time interval, in minutes, between the RADIUS server being marked unreachable and connection can be re-attempted.

Must be an integer in the range of 0-65535.

max_retries

Specify the maximum number of times the system will attempt retry with the RADIUS server.

Must be an integer in the range of 0-65535.

timeout_interval

Specify the time interval to elapse for a response from the RADIUS server before re-transmitting.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to configure the RADIUS accounting parameters.

profile radius accounting attribute

Configures RADIUS identification parameters.

Command Modes Exec > Global Configuration

Syntax Description `attribute { nas-identifier nas_id | nas-ip aaa_nas_ipv4_address }`

nas-identifier nas_id

Specify the attribute name by which the system will be identified in Accounting-Request messages.

nas-identifier nas_id

Specify the attribute name by which the system will be identified in Accounting-Request messages.

nas-ip aaa_nas_ipv4_address

Specify the AAA NAS IPv4 Address.

Usage Guidelines Use this command to configure RADIUS identification parameters.

profile radius accounting detect-dead-server

Configures the response timeout duration, in seconds, to wait for a response from the RADIUS server after which it is marked as unreachable/dead.

Command Modes Exec > Global Configuration

Syntax Description **detect-dead-server** *response_timeout_duration*

response-timeout *response_timeout*

Specify the time interval, in seconds, for response from RADIUS server to mark as unreachable.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to configure the response timeout duration, in seconds, to wait for a response from the RADIUS server after which it is marked as unreachable/dead.

profile radius attribute

Configures RADIUS identification parameters.

Command Modes Exec > Global Configuration

Syntax Description **attribute** { **nas-identifier** *nas_id* | **nas-ip** *aaa_nas_ipv4_address* }

nas-identifier *nas_id*

Specify the attribute name by which the system will be identified in Accounting-Request messages.

nas-identifier *nas_id*

Specify the attribute name by which the system will be identified in Accounting-Request messages.

nas-ip *aaa_nas_ipv4_address*

Specify the AAA NAS IPv4 Address.

Usage Guidelines Use this command to configure RADIUS identification parameters.

profile radius detect-dead-server

Configures the response timeout duration, in seconds, to wait for a response from the RADIUS server after which it is marked as unreachable/dead.

Command Modes Exec > Global Configuration

Syntax Description `detect-dead-server response_timeout_duration`

response-timeout *response_timeout*

Specify the time interval, in seconds, for response from RADIUS server to mark as unreachable.

Must be an integer in the range of 1-65535.

Usage Guidelines Use this command to configure the response timeout duration, in seconds, to wait for a response from the RADIUS server after which it is marked as unreachable/dead.

profile radius server

Configures the external RADIUS server parameters.

Command Modes Exec > Global Configuration

Syntax Description `server options`

ip *ip_address*

Specify the IP address of the RADIUS server.

port *port_number*

Specify the port number of the RADIUS server.

Must be an integer in the range of 1-65535.

priority *radius_server_priority*

Specify the priority of the RADIUS server.

Must be an integer in the range of 1-100.

secret *radius_server_secret*

Specify the RADIUS server secret.

type *port_number*

Specify the server type.

Must be one of the following:

- **acct**
- **auth**

Default Value: auth.

Usage Guidelines Use this command to configure the external RADIUS server parameters.

profile radius server-group

Configures association of RADIUS servers to groups.

Command Modes Exec > Global Configuration

Syntax Description **accounting** *options*

server_group_name

Specify the server group name.

Must be a string in the pattern ([a-zA-Z0-9_][^\s,]*)

Usage Guidelines Use this command to configure the association of RADIUS servers to groups.

profile radius server-group server

Configures the RADIUS server parameters.

Command Modes Exec > Global Configuration

Syntax Description **server** *options*

ip radius_server_ip_address

Specify the IP address of the RADIUS server.

port radius_server_port_number

Specify the port number of the RADIUS server.

type server_type

Specify the RADIUS server type.

Must be one of the following:

- **acct**
- **auth**

Usage Guidelines Use this command to configure the RADIUS server parameters.

profile radius-dynamic-author

Configures the RADIUS Dynamic-author/COA parameters.

Command Modes Exec > Global Configuration

Syntax Description **radius-dynamic-author** *options*

nas-identifier *nas_id*

Specify the dynamic-author NAS ID.

nas-identifier *nas_id*

Specify the dynamic-author NAS ID.

secret *secret_key*

Specify the dynamic-author server shared secret key.

Usage Guidelines Use this command to configure the RADIUS Dynamic-author/COA parameters.

profile radius-dynamic-author client

Configures the RADIUS Dynamic-author client parameters.

Command Modes Exec > Global Configuration

Syntax Description **client** *options*

ip radius_client_ip_address

Specify the IP address of the RADIUS client.

secret *secret_key*

Specify the client shared secret key.

Usage Guidelines Use this command to configure the RADIUS Dynamic-author client parameters.

profile sgw

Configures SGW network function profile.

Command Modes Exec > Global Configuration (config)

Syntax Description **sgw** *sgw_profile_name* [**fqdn** *sgwc_fqdn* | **locality** *locality_name* | **mode** *mode_of_operation* | **qci-qos-profile** *qci_qos_profile* | **subscriber-policy** *policy_name* | **wps-profile** *wps_profile_name*]

fqdn *sgwc_fqdn*

Specify the SGW-C Fully Qualified Domain Name (FQDN).

Must be a string.

locality *locality_name*

Specify the locality name for geo support.

Must be a string.

mode *mode_of_operation*

Specify the mode of operation.

Must be one of the following:

- **offline**: In the offline mode, new sessions are rejected.

qci-qos-profile *qci_qos_profile*

Specify the configuration related QCI to QoS mapping.

Must be a string.

subscriber-policy *policy_name*

Specify the subscriber policy name.

Must be a string.

wps-profile *wps_profile_name*

Specify the Wireless Priority Services (WPS) profile name.

Must be a string.

sgw_profile_name

Specify the SGW NF profile name.

Must be a string.

Usage Guidelines

Use this command to configure SGW NF profile.

You can configure a maximum of 64 elements with this command.

profile sgw ddn

Configures DDN-specific parameters.

Command Modes

Exec > Global Configuration (config) > SGW Profile Configuration (config-sgw-profile_name)

Syntax Description

```
ddn{ failure-action-drop-timer timer_duration | no-user-connect-retry-timer
    timer_duration | trigger-on-pgw-initiated-proc }
```

failure-action-drop-timer *timer_duration*

Specify the DDN packet drop time for which DDN will not be sent to UE. This will be used on receiving DDN ACK Failure or DDN Failure Indication. To disable the timer, set to 0.

Must be an integer from the following: 0, 1-300.

Default Value: 300.

no-user-connect-retry-timer *timer_duration*

Specify the DDN retry timer used for the case when DDN Ack is received with Success and MBR is not received. To disable the timer, set to 0.

Must be an integer from the following: 0, 60-300.

Default Value: 60.

trigger-on-pgw-initiated-proc

Specify to enable Page UE for P-GW initiated procedures (CBR/UBR) when UE is in IDLE mode. When configured, the S-GW sends failure response to P-GW with cause code 110.

Usage Guidelines Use this command to configure DDN-specific parameters.

profile sgw internal-qos

Configures the mechanism for deriving the Internal QOS value.

Command Modes Exec > Global Configuration (config) > SGW Profile Configuration (config-sgw-profile_name)

Syntax Description **internal-qos data** *iqos_value_derivation*

data *iqos_value_derivation*

Specify the mechanism to derive the Internal QOS value for data traffic.

Must be one of the following:

- **dscp-derived**: Enables the derivation of Internal QOS value based on the DSCP value.
- **none**: Disables the mechanism for Internal QOS value derivation.
- **qci-derived**: Enables the derivation of Internal QOS value based on the QCI value.

Usage Guidelines Use this command to configure the mechanism for deriving the Internal QOS value.

profile sgw plmn-list

Configures the PLMN list of MCC and MNC.

Command Modes Exec > Global Configuration (config) > SGW Profile Configuration (config-sgw-profile_name)

Syntax Description **plmn-list**{ **mcc** *mobile_country_code* | **mnc** *mobile_network_code* }

mcc mobile_country_code

Specify the Mobile Country Code (MCC).

Must be a string.

mnc mobile_network_code

Specify the Mobile Network Code (MNC).

Must be a string.

Usage Guidelines

Use this command to configure the PLMN list of MCC and MNC. If the plmn-list is configured, plmn-id configuration is not used.

You can configure a maximum of 32 elements with this command.

profile sgw-qos-profile

Configures the SGW QoS profile configuration.

Command Modes

Exec > Global Configuration (config)

Syntax Description

profile sgw-qos-profile *sgw_qos_profile_name*

sgw_qos_profile_name

Specify the SGW QoS profile name.

Must be a string.

Usage Guidelines

Use this command to configure the SGW QoS profile configuration.

profile sgw-qos-profile dscp-map operator-defined-qci

Configures the non-standard QCI values.

Command Modes

Exec > Global Configuration (config) > SGW QoS Profile Configuration (config-sgw-qos-profile-foo)

Syntax Description

dscp-map operator-defined-qci *non_standard_qos_class_id*

non_standard_qos_class_id

Specify the non-standard QoS class identifier.

Must be an integer in the range of 128-254.

Usage Guidelines

Use this command to configure the non-standard QCI values.

profile sgw-qos-profile dscp-map operator-defined-qci gbr arp-priority-level

Configures the ARP priority level.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **dscp-map qi5 qci_name arp-priority-level arp_name**

arp_name

Specify the ARP name.

Must be an integer in the range of 1-15.

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile sgw-qos-profile dscp-map operator-defined-qci gbr arp-priority-level dscp-info

Configures the DSCP type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type dscp_type**

dl-encap-ci-dscp dscp_value

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-ci-priority priority

Specify the priority.

Must be a string.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp dscp_value

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-encap-type

Specify to copy inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets (A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the ul-encap-ci priority.

Must be a string.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines

Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map operator-defined-qci gbr dscp-info

Configures the DSCP type.

Command Modes

Exec > Global Configuration

Syntax Description

dscp-info type *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-encap-type

Specify to copy inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets (A hexadecimal string starting with "0x". For example, 0x3F).

Must be a string.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the ul-encap-ci priority.

Must be a string.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr

Configures the type of the QCI to non GBR.

Command Modes Exec > Global Configuration

Syntax Description `non-gbr options`

Usage Guidelines Use this command to configure the type of the QCI to non GBR.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr arp-priority-level

Configures the ARP priority level.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **dscp-map qi5** *qci_name* **arp-priority-level** *arp_name*

arp_name

Specify the ARP name.

Must be an integer in the range of 1-15.

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr arp-priority-level dscp-info

Configures the DSCP type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type** *dscp_type*

dl-encap-ci-dscp dscp_value

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-ci-priority priority

Specify the priority.

Must be a string.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp dscp_value

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-encap-type

Specify to copy inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets (A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the ul-encap-ci priority.

Must be a string.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines

Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map operator-defined-qci non-gbr dscp-info

Configures the DSCP type.

Command Modes

Exec > Global Configuration

Syntax Description

dscp-info **type** *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-encap-type

Specify to copy inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets (A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the ul-encap-ci priority.

Must be a string.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci

Configures the standard QCI value.

Command Modes Exec > Global Configuration (config) > SGW QoS Profile Configuration (config-sgw-qos-profile-*profile_name*)

Syntax Description **dscp-map qci** *qos_profile_name* **qci-name** *standard_qos_class_id*

qci-name *standard_qos_class_id*

Specify the standard QoS class identifier.

Must be an integer from the following: 1-9, 65, 66, 69, 70, 80, 82, 83.

Usage Guidelines Use this command to configure the standard QCI value.

profile sgw-qos-profile dscp-map qci arp-priority-level

Configures the ARP priority level.

Command Modes Exec > Global Configuration (config) > QoS Profile Configuration (config-qos-profile_name)

Syntax Description **dscp-map qi5** *qci_name* **arp-priority-level** *arp_name*

arp_name

Specify the ARP name.

Must be an integer in the range of 1-15.

Usage Guidelines Configures the type of the QCI to GBR. Use this command to configure the ARP priority level.

profile sgw-qos-profile dscp-map qci arp-priority-level dscp-info

Configures the DSCP type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type** *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-encap-type

Specify to copy inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets (A hexadecimal string starting with "0x". For example, 0x3F.

Must be a string.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the ul-encap-ci priority.

Must be a string.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines

Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci default

Configures the default setting.

Command Modes

Exec > Global Configuration

Syntax Description

default *options*

Usage Guidelines

Use this command to configure the default setting.

profile sgw-qos-profile dscp-map qci default dscp-info

Configures the DSCP type.

Command Modes

Exec > Global Configuration

Syntax Description

dscp-info type *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-encap-type

Specify to copy inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets (A hexadecimal string starting with "0x". For example, 0x3F).

Must be a string.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the ul-encap-ci priority.

Must be a string.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines

Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci gbr dscp-info

Configures the DSCP type.

Command Modes

Exec > Global Configuration

Syntax Description

dscp-info **type** *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-ci-priority *priority*

Specify the priority.

Must be a string.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-co-priority *priority*

Specify the priority.

Must be a string.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-encap-type

Specify to copy inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets (A hexadecimal string starting with "0x". For example, 0x3F).

Must be a string.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the ul-encap-ci priority.

Must be a string.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines Use this command to configure the DSCP type.

profile sgw-qos-profile dscp-map qci non-gbr dscp-info

Configures the DSCP type.

Command Modes Exec > Global Configuration

Syntax Description **dscp-info type** *dscp_type*

dl-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets.
Must be a string.

dl-encap-ci-priority *priority*

Specify the priority.
Must be a string.

dl-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.
Must be a string.

dl-encap-co-priority *priority*

Specify the priority.
Must be a string.

dl-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.
Must be a string.

dl-encap-dscp-priority *priority*

Specify the priority.
Must be a string.

dl-encap-dscp-user-datagram

Specify DSCP value be applied to user datagram.

dl-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-iq-copy-outer

Specify to copy outer DSCP to inner.

dl-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-encap-type

Specify to copy inner DSCP to outer.

dl-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

dl-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-iq-user-datagram

Specify DSCP value be applied to user datagram.

dl-priority *dl_priority*

Specify the priority.

Must be a string.

dl-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

dl-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

dl-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

dl-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

dl-ud-priority *priority*

Specify the priority.

Must be a string.

dl-user-datagram

Specify DSCP value be applied to user datagram.

dscp-marking-dl *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

type *dscp_type*

Specify the DCSP type.

Must be one of the following:

- **downlink**
- **uplink**

ul-encap-ci-dscp *dscp_value*

Specify the DSCP value to be applied to packets (A hexadecimal string starting with "0x". For example, 0x3F).

Must be a string.

ul-encap-ci-priority *ul_encap_ci_priority*

Specify the ul-encap-ci priority.

Must be a string.

ul-encap-ci-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-co-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-co-priority *priority*

Specify the priority.

Must be a string.

ul-encap-co-user-datagram

Specify DSCP value be applied to user datagram.

ul-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encap-dscp-priority *priority*

Specify the priority.

Must be a string.

ul-encap-dscp-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-encap-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-encaps-header *dscp_value*

Specify the DCSP value to be applied to encaps header.

ul-iq-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-iq-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-iq-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-encaps-header

Specify the DSCP value to be applied to encaps header.

ul-iq-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-iq-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

ul-priority *priority*

Specify the priority.

Must be a string.

ul-ud-dscp *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encap-copy-inner

Specify to copy inner DSCP to outer.

ul-ud-encap-copy-outer

Specify to copy outer DSCP to inner.

ul-ud-encap-dscp-marking *dscp_value*

Specify the DSCP value to be applied to packets.

Must be a string.

ul-ud-encaps-header *dscp_value*

Specify the DSCP value to be applied to encaps header.

ul-ud-priority *priority*

Specify the priority.

Must be a string.

ul-user-datagram *dscp_value*

Specify DSCP value be applied to user datagram.

Usage Guidelines

Use this command to configure the DSCP type.

profile smf

Configures the SMF profile configuration.

Command Modes

Exec > Global Configuration (config)

Syntax Description

```
smf profile_name [ dnn-profile-list dnn_profile_list | locality locality | nf-services nf_services | node-id node_id ]
```

allowed-nassi *nssai*

Specify the Network Slice Selection Assistance Information (NSSAI).

Must be a string.

dnn-selection-mode *dnn_selection_mode*

Specify the selection mode for subscription.

Must be one of the following:

- **network-provided**
- **ue-provided**
- **verified**

fqdn *fqdn*

Specify the SMF+PGW-C FQDN.

Must be a string.

locality *locality*

Specify the locality for geo support.

Must be a string.

mode *mode_of_operation*

Specify the mode of operation.

Must be one of the following:

- **offline**: Offline mode. New sessions will be rejected.

nf-services *nf_services*

Specify the NF services.

Must be a string.

node-id *node_id*

Specify the SMF's node ID.

Must be a string.

ue-authorization *ue_authorization*

The SMF supports the PDU sessions with IPv4v6 type in addition to IPv4 and IPv6 PDU session types for UEs. When a UE requests establishment of PDU session with a specific session type, the SMF checks the UE request against the UE subscription information maintained as default and allowed list PDU session types in the UDM. The SMF performs UE authorization and allocates IP address when the requested PDN type is matching with the values in the UDM. The SMF communicates about the allocated IP address to all other network functions.

Must be one of the following:

- none

profile_name

Specify the SMF profile name.

Must be a string.

Usage Guidelines

Use this command to configure the SMF network function profile configuration parameters.

profile smf plmn-id

Configures the definition for public land mobile network identifier (PLMN ID) and the preferred radio access technology (RAT). This is one of PLMNs which is considered by the mobile as equivalent to the visited PLMN for cell reselection and network selection. When configured, the equivalent PLMN list will be sent to the UE in NAS ATTACH ACCEPT / TAU ACCEPT messages.

Command Modes

Exec > Global Configuration (config) > SMF Profile Configuration (config-smf-*profile_name*)

Syntax Description

```
plmn-id{ [ mcc mobile_country_code ] [ mnc mobile_network_code ] }
```

mcc *mobile_country_code*

Specify the mobile country code (MCC) portion of the PLMN ID.

Must be a string.

mnc *mobile_network_code*

Specify the mobile network code (MNC) portion of the PLMN ID.

Must be a string.

Usage Guidelines

Use the command to identify a PLMN and assign it a priority to define the preferred PLMN to be used. This command can be entered multiple times to set priorities of usage.

profile smf plmn-list

Configures list of MCC and MNC.

Command Modes Exec > Global Configuration (config) > SMF Profile Configuration (config-smf-profile_name)

Syntax Description **plmn-list** **mcc** *mobile_country_code* **mnc** *mobile_network_code*

mcc *mobile_country_code*

Specify the 3-digit Mobile Country Code.

Must be a string.

mnc *mobile_network_code*

Specify the 2- or 3-digit Mobile Country Network.

Must be a string.

Usage Guidelines Use this command to configure the list of MCC and MNC. If configured, both PLMN ID and PLMN list are used.

You can configure a maximum of 32 elements with this command.

profile smf service

Configures the session management network function services. The service names as specified in 3GPPTS 29.510 V15.2.0, Section 6.1.6.3.11.

Command Modes Exec > Global Configuration (config) > SMF Profile Configuration (config-smf-profile_name)

Syntax Description **service name** *service_name* [**access-profile** *profile_name* | **capacity** *capacity* | **compliance-profile** *compliance_profile_name* | **icmpv6-profile** *profile_name* | **nf-service** *nf_service_name* | **priority** *priority* | **schema** *schema_name* | **service-id** *service_id* | **subscriber-policy** *policy_name* | **type** *service_type* | **version** *version*]

access-profile *profile_name*

Specify the access profile name.

Must be a string.

capacity *capacity*

Specify the static weight relative to other NFs of the same type.

Must be an integer in the range of 0-65535.

Default Value: 10.

compliance-profile *compliance_profile_name*

Specify the compliance profile name.

Must be a string.

icmpv6-profile *profile_name*

Specify the ICMPv6 profile name.

Must be a string.

nf-service *nf_service_name*

Specify the NF service name.

Must be a string.

priority *priority*

Specify the priority relative to other NFs of the same type.

Must be an integer in the range of 0-65535.

Default Value: 1.

schema *schema_name*

Specify the schema name.

Must be a string.

service-id *service_id*

Specify the service ID.

Must be a string.

Default Value: "1".

subscriber-policy *policy_name*

Specify the subscriber policy name.

Must be a string.

type *service_type*

Specify the service type.

Must be one of the following:

- pdu-session
- sm-event-exposure

version *version*

Specify the version.

Must be a string.

Usage Guidelines Use this command to configure the N1, N2, and N11 interfaces in compliance with the 3GPP. Changes to the Service Configuration mode (config-service-<service_name>).

profile smf service http-endpoint

Configures the SMF HTTP REST endpoint parameters.

Command Modes Exec > Global Configuration (config) > SMF Profile Configuration (config-smf-profile_name) > Service Configuration (config-service-service_name)

Syntax Description **http-endpoint base-url** *base_url*

base-url *base_url*

Specify the SMF base URL that is exposed and accessible externally.

Must be a string.

Usage Guidelines Use this command to configure the SMF HTTP REST endpoint parameters.

profile tai-group

Configures TAI Group profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description **profile tai-group** *profile_name* [**priority** *tai_group_priority*]

priority *tai_group_priority*

Specify the priority of this TAI group.

Must be an integer in the range of 0-65535.

profile_name

Specify the TAI group profile name.

Must be a string.

Usage Guidelines Use this command to configure the TAI Group profile parameters.

profile tai-group tais

Configures the list of MCC, MNC, and possible TACs.

Command Modes Exec > Global Configuration (config) > TAI Group Profile Configuration (config-tai-group-profile_name)

Syntax Description `tais{ mcc mobile_country_code | mnc mobile_network_code }`

mcc mobile_country_code

Specify the Mobile Country Code (MCC).

Must be a string.

mnc mobile_network_code

Specify the Mobile Network Code (MNC).

Must be a string.

Usage Guidelines Use this command to configure the list of MCC, MNC, and possible TACs.
You can configure a maximum of 16 elements with this command.

profile tai-group tais tac

Configures the TAC Group parameters.

Command Modes Exec > Global Configuration (config) > TAI Group Profile Configuration (config-tai-group-profile_name)

Syntax Description `tac tac_values`

tac_values

Specify the list of TAC values.

Must be a string.

Usage Guidelines Use this command to configure the TAC Group parameters.
You can configure a maximum of 64 elements with this command.

profile tai-group tais tac range

Configures TAC ranges.

Command Modes Exec > Global Configuration (config) > TAI Group Profile Configuration (config-tai-group-profile_name)

Syntax Description `range start tac_range_start end tac_range_end`

Usage Guidelines Use this command to configure a TAC range.
You can configure a maximum of 64 elements with this command.

profile upf-group

Configures the UPF group profile.

Command Modes

Exec > Global Configuration (config)

Syntax Description

```
profile upf-group upf_group_name [ dcnr{ false | true } ] |
location-area-group-list location_area_group_list | pdn-session-type
pdn_session_type | slice-group-list slice_group_list ]
```

dcnr{ false | true }

Specify to enable or disable support for dual connectivity with new radio.

Must be one of the following:

- **false**
- **true**

Default Value: false.

location-area-group-list *location_area_group_list*

Specify the list of Location Area Group supported by UPF node.

Must be a string.

pdn-session-type *pdn_session_type*

Specify the list of PDN session type supported by UPF node.

Must be one of the following:

- **ipv4**
- **ipv4v6**
- **ipv6**

slice-group-list *slice_group_list*

Specify the list of slice group supported by UPF node.

Must be a string.

upf_group_name

Specify the UPF group name.

Must be a string.

Usage Guidelines

Use this command to configure the UPF group profile.

profile upf-group failure-profile

Configures the UPF Group failure profile.

Command Modes

Exec > Global Configuration (config) > UPF Group Profile Configuration (config-upf-group-profile_name)

Syntax Description `failure-profile failure_profile_name`

failure_profile_name

Specify the UPF failure profile name.

Must be a string.

Usage Guidelines Use this command to configure the UPF Group failure profile.

profile upf-group heartbeat

Enables PFCP path management.

Command Modes Exec > Global Configuration (config) > UPF Group Profile Configuration (config-upf-group-profile_name)

Syntax Description `heartbeat [interval heartbeat_interval | retransmission-timeout retransmission_timeout | max-retransmissions max_retransmissions]`

interval heartbeat_interval

Specify the heartbeat interval in seconds. To disable, set to 0.

Must be an integer.

max-retransmissions max_retransmissions

Specify the maximum number retries for PFCP heartbeat request.

Must be an integer in the range of 0-10.

retransmission-timeout retransmission_timeout

Specify the heartbeat retransmission timeout period in seconds.

Must be an integer in the range of 1-20.

Usage Guidelines Use this command to enable PFCP path management.

profile wps

Configures the Wireless Priority Service (WPS) profile parameters.

Command Modes Exec > Global Configuration (config)

Syntax Description `profile wps wps_service_name [arp arp_level_range | message-priority message_priority]`

arp arp_level_range

Specify the range of ARP levels (separated by , or -).

Must be an integer.

-Or-

Must be a string.

message-priority *message_priority*

Specify the message priority for GTP-C and UP.

Must be one of the following:

- **gtpc**
- **pfcp**

wps_service_name

Specify the WPS service name.

Must be a string.

Usage Guidelines

Use this command to configure the WPS profile parameters. Changes to the WPS Profile Configuration mode (config-wps-<profile_name>).

You can configure a maximum of two elements with this command.

profile wps dscp

Configures the DSCP marking value for n3.

Command Modes

Exec > Global Configuration (config) > WPS Profile Configuration (config-wps-*profile_name*)

Syntax Description

dscp n3 *dscp_marking_value*

n3 *dscp_marking_value*

Specify the UP DSCP marking value in the decimal range 0-63 or hex 0x0-0x3F.

Must be a string.

Usage Guidelines

Use this command to configure the DSCP marking value for n3.

radius

Configures RADIUS client parameters.

Command Modes

Exec > Global Configuration

Syntax Description

radius *options*

Usage Guidelines

Use this command to configure RADIUS client parameters.

radius acct-server

Displays RADIUS accounting server information.

Command Modes Exec > Global Configuration

Syntax Description `show radius acct-server`

Usage Guidelines Use this command to view RADIUS accounting server information.

radius auth-server

Displays RADIUS authentication server information.

Command Modes Exec > Global Configuration

Syntax Description `show radius auth-server`

Usage Guidelines Use this command to view RADIUS authentication server information.

radius-dyn-auth

Configures the RADIUS Dynamic-author oper data.

Command Modes Exec > Global Configuration

Syntax Description `radius-dyn-auth options`

Usage Guidelines Use this command to configure the RADIUS Dynamic-author oper data.

radius-dyn-auth clients

Displays Dynamic-author information.

Command Modes Exec > Global Configuration

Syntax Description `show radius auth-server`

Usage Guidelines Use this command to view RADIUS Dynamic-author information.

resources info

Displays resource information.

Command Modes Exec

Syntax Description `show resources [info]`

Usage Guidelines Use this command to view information about the configured resources.

rpc all

Displays RPC configuration information.

Command Modes Exec

Syntax Description `show rpc [all]`

Usage Guidelines Use this command to view RPC configuration information for all RPCs.

running-status info

Displays the current status of the system.

Command Modes Exec

Syntax Description `show running-status [info]`

Usage Guidelines Use this command to view the current status of the system.

sessions affinity

Displays the affinity count per instance.

Command Modes Exec

Syntax Description `show sessions affinity`

Usage Guidelines Use this command to view the affinity count per instance.

sessions commit-pending

Displays information for sessions for which the commits are in pending state.

Command Modes Exec

Syntax Description `show sessions commit-pending`

Usage Guidelines Use this command to view information for sessions that are pending commits in the database.

show subscriber

Displays subscriber information.

Command Modes Exec

Syntax Description `show subscriber [all | supi supi_id | config_specific_options]`

all

Specify all subscribers.

namespace *namespace*

Specify the product namespace under which to search.

Default Value: cisco-mobile-infra:none.

supi *supi_id*

Specify the subscriber's SUPI ID.

Must be a string.

Usage Guidelines Use this command to view subscriber information.

system-diagnostics session-consistency

Enables and configures inconsistency checks on session data.

Syntax Description `system-diagnostics session-consistency action action_on_inconsistent_data`

action *action*

Specify the action to take on inconsistent data.

Must be one of the following:

- **cleanup**
- **monitor**

Usage Guidelines Use this command to enable and configure inconsistency checks on session data.

test dns-query

Tests FQDN resolution.

Command Modes Exec

Syntax Description**dns-query****fqdn fqdn**

Specify the Fully Qualified Domain Name (FQDN) of the node for which DNS query has to be sent.

Must be a string.

num-ipv4 num_ipv4

Specify the number of IPv4 to be used for DNS query.

Must be an integer in the range of 1-9.

num-ipv4v6 num_ipv4v6

Specify the number of IPv4v6 to be used for DNS query.

Must be an integer in the range of 1-9.

num-ipv6 num_ipv6

Specify the number of IPv6 to be used for DNS query.

Must be an integer in the range of 1-9.

Usage Guidelines

Use this command to test FQDN resolution.

test-radius

Tests RADIUS server function.

Command Modes

Exec > Global Configuration

Syntax Description**test-radius**

Usage Guidelines

Use this command to test RADIUS server function.

test-radius accounting

Tests RADIUS accounting server function.

Command Modes

Exec > Global Configuration

Syntax Description**test-radius accounting** *options***all ip_address**

Specify to test all configured servers.

Must be one of the following:

all *ip_address*

Specify to test all configured servers.

Must be one of the following:

client-nas *ip_address*

Specify the client NAS IP address.

port *server_port_number*

Specify the port number of the RADIUS server.

Must be an integer in the range of 1-65535.

server-group *server_group_name*

Specify the server group name.

Must be a string.

server *server_ip_address*

Specify the IP address of the RADIUS server.

username *user_name*

Specify the user name.

Must be a string.

Default Value: "test".

Usage Guidelines

Use this command to test RADIUS accounting server function.

test-radius authentication

Tests RADIUS authentication server function.

Command Modes

Exec > Global Configuration

Syntax Description

test-radius authentication *options*

all *ip_address*

Specify to test all configured servers.

Must be one of the following:

all *ip_address*

Specify to test all configured servers.

Must be one of the following:

client-nas *ip_address*

Specify the client NAS IP address.

password *password*

Specify the password for user with authentication verified.

Must be a string.

Default Value: "test".

port *server_port_number*

Specify the port number of the RADIUS server.

Must be an integer in the range of 1-65535.

server-group *server_group_name*

Specify the server group name.

Must be a string.

server *server_ip_address*

Specify the IP address of the RADIUS server.

username *user_name*

Specify the user name.

Must be a string.

Default Value: "test".

Usage Guidelines

Use this command to test RADIUS authentication server function.

